המרכז הרפואי שערי צדק

תקצירים
כנס המחקר השלישי
הדור הבא של צוותי המחקר

2.3.2022

Abstracts

3rd Research Conference

Shaare Zedek Medical Center

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דברי סיכום
פרופ' דן טרנר, סמנכ"ל מחקר ופיתוח, המרכז הרפואי שערי צדק

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פרופ' דינה בן יהודה, דיקן הפקולטה לרפואה, האוניברסיטה העברית
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15:30-16:00 | הרצאת אורח

פרופ' אהרן צ'חנובר, חתן פרס נובל לכימיה, הטכניון

פרוק חלבוני הגוף - משאלה צידית בביולוגיה למרכז הבמה (כמעט) ברפואה ובפיתוח תרופות

חוקרות וחוקרים יקרים,

כנס המחקר השנתי של שערי צדק הפך כבר למסורת של מצוינות וחדשנות ותופס את מקומו ככנס חשוב ומרכזי בעולם הרפואה והמחקר בישראל.
השנה מקבל הכנס גם זווית היסטורית - במלאת 120 שנה לשערי צדק.
בית החולים הקטן שהוקם ברחוב יפו במטרה להעניק טיפול רפואי מתקדם לתושבי ירושלים הפך למרכז על רפואי ומחקרי בעל שם ארצי ובינלאומי.
בעשור האחרון אנו רואים קפיצה משמעותית בעולם המחקר בשערי צדק:
יותר מ-500 מאמרים התפרסמו בירחונים מדעיים ע"י חוקרי שערי צדק, 390 בקשות הוגשו לוועדת הלסינקי בשנת 2021 מ-71 מחלקות בבית החולים. אלו מצטרפים לכ-1000 מחקרים פעילים כעת.
שערי צדק באמצעות חברת מדעית הפך למבוקש בעולמות הסטרטאפ ובשנים האחרונות נחתמו 680 חוזים עם חברות שונות בתעשייה.
חוקרי שערי צדק זכו השנה במענקים ומלגות בעשרות מליוני שקלים וזו הבעת אמון גדולה ביכולת שלהם.
התפתחות עולם המחקר מחייבת אותנו להשקיע בהון האנושי ולאפשר לרופאים שלנו לעסוק גם במחקר. ייסדנו את תכניות רופא חוקר ותוכניות לקידום מתמחים מצטיינים, יצרנו שיתוף פעולה עם הפקולטה לרפואה ועם המכון למדעי החיים ופיתחנו תכניות נוספות.
פעולות אלו מחזקות את הדור הצעיר של הרופאים והחוקרים, מושכות אלינו מומחים מצטיינים ומקדמות את הרפואה.
השקעה זו מניבה פרי איכותי ביותר.
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זוהי תעודת כבוד לשערי צדק וגאווה גדולה לכולנו.
ברצוני להודות לכם החוקרות והחוקרים, לצוות מדעית בראשות ד"ר רננה אופן, ולפרופ' דן טרנר סמנכ"ל מו"פ וחדשנות על התנופה האדירה שאתם מביאים ועל העבודה החשובה לכל אורך השנה.

בברכה
פרופ' עופר מרין
מנכ"ל המרכז הרפואי שערי צדק

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חוקרים וחוקרות יקרים,

כנס זה, השלישי בתולדות שערי צדק, מתרכז בדור החוקרים הבא כמשאב החשוב ביותר לעתיד הרפואה והחדשנות. רכישת מיומנויות מחקר חשובה כיום יותר מהעבר לצורך חילוץ ידע מתוך בליל הנתונים שנשמרים ברשומה הרפואית בעידן הטכנולוגי. לדור הצעיר הבנה וחדות מחשבה לטכנולוגיה המתפתחת הרבה יותר מאשר חוקרים ותיקים, מוצלחים ככל שיהיו. כדי לשמר את תנופת פיתוח הרפואה בכלל והרפואה הדגיטלית בפרט, בשערי צדק עמלים לפתח אהבת מחקר וסקרנות כחלק מהכשרת רופאים ורופאות צעירים בשערי צדק. זה לא רק העתיד- אלא גם ההווה. במסגרת זו השקנו השנה מגוון תוכניות רופא-חוקר לצעירים, ועשרות מלגות מחקר מחולקות מטעם מדעית שערי צדק מדי שנה בעדיפות לצעירים. בכנס זה אנו גאים לתת לזוכים ולזוכות במה והוקרה על פעולתם.
102 התקצירים האגודים בספר זה משקפים עוצמה מחקרית מרשימה מכלל המחלקות והיחידות במרכז הרפואי וכולה שייכת לצעירים ולצעירות המבטיחים. כאן המקום להכיר תודה והוקרה לחוקרים הוותיקים שרק בזכות ההדרכה והעידוד שלהם, עבודות אלו יצאו אל הפועל. וככלל, כמעט 500 מאמרים רפואיים מפורסמים כל שנה על ידי הצוות הרפואי של שערי צדק, דבר המבטא עשייה מחקרית עניפה ומרשימה ביותר.
ביום חג זה אנו שולחים ברכה להמשך עשייה מחקרית פוריה לטובת החולים והרפואה.

פרופ' דן טרנר
סמנכ"ל מו"פ וחדשנות

ד"ר רננה אופן
מנהלת הרשות למו"פ

1 The use of thromboelastography (teg) in obstetric anesthesiology: a retrospective study conducted in one university medical center

Kateryna Levenfus, Adina Weiss, Dniel Shatalin, Alexander Ioscovich
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Background
Thromboelastography (TEG) is a non-invasive, commonly available quantitative test for measuring the ability of whole blood to form a clot. Since its introduction to clinical practice in 1948, the use of TEG has expanded as its clinical efficacy has been attained. Here we looked at reasons for using TEG in the peripartum period.

Methods
A single-center, retrospective study was conducted, analyzing the electronic medical records (EMR) of 288 women who were admitted to the labor and delivery unit, and for which TEG was performed. The study duration was 5 years: 2015-2020. Data collected included platelet count, prothrombin time (PT), international normalized ratio (INR), activated partial thromboplastin time (aPTT), hemoglobin and fibrinogen level. Then we looked at TEG results, focusing on the maximum amplitude (MA) parameter. In addition we recorded the diagnoses given and anesthetic management for each participant during labor and delivery.

Results
All participants fit into one of the following 6 groups: gestational thrombocytopenia (n=41,14.24%), immune thrombocytopenic purpura (ITP) (n=33, 11.46%), preeclampsia (n=27, 9.38%), preexisting coagulopathy (n=14,4.86%), suspected coagulopathy (n=26,9.03%), massive bleeding (n=147, 51.04%). There were no major differences in the demographics of the participants. Platelet count was found to be significantly low in ITP and gestational thrombocytopenia, 73.55+/- 22.98. TEG results: MA values were in normal range for the majority of participants in each category: gestational thrombocytopenia 87.8%, ITP 75.76%, Preeclampsia 88.88%, preexisting coagulopathy 78.57%, suspected coagulopathy 76.92%, massive bleeding 65.99%. Regional anesthesia was performed in all groups: gestational thrombocytopenia 73.17%, ITP 36.36%, preeclampsia 62.96%, basic coagulopathy 64.29%, suspected coagulopathy 53.85%, massive bleeding 65.46%.

Conclusion
We found two main reasons for performing TEG in the peripartum period:1. low platelets 2.massive bleeding. TEG and specifically the MA parameter are beneficial in peripartum management, specifically with the decision whether to perform neuraxial anesthesia in the presence of a low platelet count; and in guiding the administration of blood products in cases of massive bleeding.

2 Predicting weight loss and comorbidity improvement 7 years following laparoscopic sleeve gastrectomy: Does early weight loss matter?

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Background
Predicting the variables that affect the outcomes following laparoscopic sleeve gastrectomy (LSG) would allow focused resource allocation with a view to improving results. Whilst greater early post-operative weight loss following LSG is associated with greater short-term weight loss, the relationship between early results and long-term outcomes has not been described.

Methods
A retrospective cohort analysis was performed on patients who underwent LSG 7 years before a follow-up telephone interview was performed. Multivariate regression analysis was used to explore the relationship between early weight loss at 4 weeks following surgery, and weight loss at 7 years. A non-inferiority analysis assessed whether early weight loss was associated with either improvement or resolution of hypertension or type 2 diabetes mellitus (T2DM) at 7 years after surgery.

Results
Of the 156 patients identified between April and October 2012, 130 (83.3%) met the inclusion criteria and were included in the analysis. The average pre-operative BMI was 42.5kg/m2 (standard deviation 5.2). The change in BMI was 4.6kg/m2 (4.0) at 4 weeks and 12.2kg/m2 (5.4) at 7 years. There was improvement or resolution in 19/31 (61.3%) patients with T2DM and 14/26 (53.8%) patients with hypertension. Whilst younger age was associated with greater weight loss at 7 years follow-up, no such relationship was identified with early post-operative weight loss. Early post-operative weight loss was also not associated with long-term improvement or resolution in hypertension or T2DM.

Conclusions
Early weight loss does not appear to be associated with greater weight loss nor comorbidity improvement 7 years following LSG.

3 The decreasing incidence of acute appendicitis during COVID-19: A retrospective multi-centre study

J Tankel, A Keinan, O Bliech, M Kousa, B Helou, S Shayd, D Zugayar, A Pikarsky, H Mazeh, R Spira, P Reissman*

Department of General Surgery, Shaare Zedek Medical Centre, The Hebrew University School of Medicine, Jerusalem, Israel Department of General Surgery, St Joseph Hospital, Jerusalem, Israel Department of Surgery, Hadassah-Hebrew University Medical Centre, Ein Kerem Campus, Jerusalem, Israel Department of Surgery, Hadassah-Hebrew University Medical Centre, Mount Scopus Campus, Jerusalem, Israel

Background
As the novel corona virus disease 19 (COVID-19) spreads, a decrease in the number of patients with acute appendicitis (AA) has been noted in our institutions. The aim of this study was to compare the incidence and severity of AA before and during the COVID-19 pandemic.

Methods
A retrospective cohort analysis was performed between December 2019 and April 2020 in the 4 high volume centres that provide healthcare to the municipality of Jerusalem, Israel. Two groups were created. Group A consisted of patients who presented in the 7 weeks prior to COVID-19 first being diagnosed whilst those in the 7 weeks after were allocated to Group B. A comparison was performed between the clinicopathological features of the patients in each group as was the changing incidence of AA.

Results
A total of 378 patients were identified, 237 in Group A and 141 in Group B (62.7% vs. 37.3%). Following the onset of COVID-19, the incidence of AA decreased 40.7% in the number of cases weekly (p = 0.02). There was no significant difference between the groups in the length of preoperative symptoms or surgery, need for post-operative peritoneal drainage or the distribution of complicated versus uncomplicated appendicitis.

Conclusions
The significant decrease in the number of patients admitted with AA during the onset of COVID-19 possibly represents successful resolution of mild appendicitis treated symptomatically by patients at home. This may challenge the dogma that AA requires either prompt surgical or even antibiotic treatment.

4 Sigmoidectomy following sigmoid volvulus: Who is at risk of anastomotic failure?

J Tankel, H Gilshtein, M Neymark, M Zuckerman, R Spira, S Yellinek

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Aim
Anastomotic leak following elective sigmoidectomy performed due to sigmoid volvulus (SV) is a devastating complication. The aim of this paper was to identify the incidence and risk factors associated with leak in this specific group of patients.

Method
A retrospective study was performed at two university affiliated tertiary centres. All consecutive patients between 2014 and 2020 treated for SV with elective sigmoidectomy and primary anastomosis were reviewed and those suffering from anastomotic leak identified. Factors associated with this complication were assessed using univariate analysis and odds ratios subsequently calculated.

Results
Of the 98 patients initially identified, 57 were included in the study group. There were 9 anastomotic leaks identified (15.7%). On univariate analysis age >80 years old (OR 6.88, p = 0.027), open rather than laparoscopic surgery (OR = 5.83, p = 0.005) and ASA grade 3/4 (OR 0.132, p = 0.023) were significantly associated with anastomotic leak. Male gender approached but not achieve a level of statistical significance.

Conclusion
Age >80 years old, open surgery and ASA grade 3/4 are significant risk for anastomotic leak and these patients should be considered for formation of a colostomy instead. If an anastomosis is performed, patients should be appropriately counselled and monitored in the perioperative period.

5 The impact of minor maternal trauma during pregnancy: A tertiary centre experience

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Introduction
The experience of pregnant patients who suffer minor trauma and are managed in a tertiary centre has not been described. The aim of this study was to explore the impact of minor trauma sustained during pregnancy on maternal and foetal outcomes in patients managed in a tertiary setting.

Methods
A retrospective single centre cohort study was performed between 2005 and 2017 in a tertiary obstetric and trauma centre. All pregnant patients of <36 weeks gestation presenting to the ED with an Injury Severity Score of <9 were identified. A control group of non-trauma pregnant patients was also created. Maternal and neonatal outcomes were compared between the two groups. Variables significant on univariate analysis were included in a multivariate regression analysis.

Results
390 patients were allocated to the study group and 1560 to the control group. The groups were similar however, in the former there was a small but significantly higher number of patients with gestational hypertension. In the study group, patients were of lower parity. On univariate analysis, minor trauma was associated with lower gestation age at delivery, lower birth weight, fewer vaginal deliveries, longer maternal and foetal hospital admission, increased chance of neonatal intensive care admission (NICU) and lower APGAR scores at 1 and 5 minutes. On multivariate analysis, gestational age and weight at birth were lower, vaginal delivery was less common, NICU admission more likely and neonatal hospital stay longer.

Conclusion
Despite management in a tertiary centre setting, minor trauma sustained during pregnancy is associated with adverse maternal and neonatal outcomes.

6 Does intervention for complicated cholelithiasis during pregnancy affect fetal outcomes: A tertiary center experience

Michael Neumann, Daphna Cohen, Amir Dagan, Petachia Reissman, Menachem Ben Haim, Sorina Grisaro, Alexander Ioscovich, James Tankel*

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Background
National level data suggests complicated cholelithiasis during pregnancy is associated with negative fetal health outcomes. However, outcomes of those managed in tertiary centers is less well understood. The aim of this study was to explore whether managing pregnant patients with complicated cholelithiasis in a tertiary center affected fetal health outcomes.

Methods
Between 2000 and 2017, a retrospective single center study was performed at a tertiary center for obstetric and hepatobiliary care. All consecutive female patients of child bearing age with symptomatic cholelithiasis were identified. Pregnant patients were allocated to the study group whilst a control group was made up of randomly selected non-pregnant patients. A comparison of baseline characteristics was made between the study and control group. A subset analysis of fetal health outcomes was performed on pregnant patients with complicated cholelithiasis in whom intervention was required.

Results
Of the 857 patients identified, 106 were allocated to the study group and 122 to the control group. Uncomplicated cholelithiasis was more common in the study group with more patients in the control group presenting with abnormal liver function tests and central bile duct dilatation. Nevertheless, the incidence of intervention was similar between the two groups. Subgroup analysis failed to identify an increased risk of adverse fetal health outcomes in those with complicated cholelithiasis nor for those in whom intervention was required.

Conclusions
If managed in a tertiary center, it does not appear that complicated cholelithiasis confers a greater risk to mother or fetus nor is this risk increased if intervention is ultimately required.

7 Laparoscopic negative appendectomy during pregnancy is associated with adverse neonatal outcome

M Rottenstreich, J Tankel, N V Ayalon, R Rotem, S Yellinek, F Khatib, S Grisaru-Granovsky*

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Background
The impact on pregnancy of laparoscopy for acute appendicitis is well documented. However, with an accurate pre-operative diagnosis being more challenging in pregnant patients, the incidence of a negative appendectomy (NA) is higher in this cohort. The aim of this study was to evaluate the maternal and neonatal implications of a NA during pregnancy.

Methods
A single center retrospective study between 2004 and 2019 was performed. Pregnant women who underwent laparoscopic appendectomy for suspected appendicitis were identified from which those who had a pathologically normal appendix were selected. The maternal and neonatal outcome of this group were compared with a matched control group of pregnant women who underwent diagnostic laparoscopy for a presumed ovarian torsion in whom no further surgical intervention was performed (DL). Multivariate regression analysis was performed to explore factors that gestational size.

Results
Of the 225 pregnant women who underwent laparoscopy appendectomy, a NA was performed in 33 (14.7%). These were compared with 50 pregnant women in the DL group. The former was characterized by higher rate of nulliparity and later gestational age at the time of the surgery (17.8±7.5 vs 11.3±6.3, p<0.001). Whilst the rate of maternal complications during pregnancy were similar between the groups, NA was associated with significantly lower neonatal birthweights (2733.9±731.1 vs 3200.7±458.5 grams, p=0.002) and a significantly higher risk of small for gestational age (SGA) infants (OR 5.6, 95% CI 1.02-30.9).

Conclusions
Performing a NA during pregnancy is an indicator for additional antenatal fetal weight estimation and well-being follow up.

8 High failure rate following restorative surgery for rectal prolapse in systemic sclerosis patients

Kahana N, Freund M, Reissman P, Yellinek S.
Division of General Surgery, Shaare Zedek Medical Center

Introduction
Systemic sclerosis (SSc) is a rare autoimmune connective tissue disorder with diverse systemic manifestations. Colonic disorders are reported in 70% of patients.
Although rectal prolapse is a well-known manifestation in SSc patients, only a few cases of surgical repair were so far published. Those cases demonstrated high recurrence rate following any type of restorative surgery, compared to non-SSc rectal prolapse patients.
The aim of this study is to present our surgical experience combined with the reported cases of SSc patients who underwent surgical interventions for rectal prolapse.

Methods
We reviewed our data in addition to the published reports in the English literature of patients with SSc who underwent surgery for rectal prolapse.

Results
We located 6 case reports, in addition to 3 patients who were operated in our center. Of these 9 patients, a total of 19 procedures were performed: 17 restorative surgeries and 2 proctectomies with colostomy. All patients were female, 70.3 years (mean) of age. Index surgery was perineal rectosigmoidectomy in 5, abdominal resection rectopexy in 3 and proctectomy with end colostomy in 1 patient. 6 patients (75%) who underwent restorative surgery required at least one re-operation for prolapse recurrence. One recurrence was treated with proctectomy. 5 patients (63%) required more than one reoperation. All patients following restorative surgery suffered from persisting fecal incontinence. The two patients who underwent proctectomy and colostomy reported a complete resolution of anorectal symptoms with a major improvement in their quality of life.

Conclusion
Very high recurrence rate (75%) maybe expected in SSc patients with rectal prolapse who undergo a restorative procedure. Proctectomy and permanent colostomy provides excellent surgical alternative to patients with SSc and prolapse in contrast to restorative surgery. We believe that this surgical approach should be considered in this unique population.

9 Is vascular reconstruction associated with post-operative pancreatic fistula following pancreaticoduodenectomy?

Noam Kahana, James Tankel, Shahaf Shay, Ariel Wimpfheimer, Michael Neumann, Petachia Reissman, Menahem Ben Haim, Amir Dagan
Division of General Surgery, Shaare Zedek Medical Center

Introduction
Whilst many factors associated with post-operative pancreatic fistula (POPF) have been identified, the association between vascular reconstruction and the incidence of POPF has not been delineated. The aim of this study was to explore whether vascular resection in patients undergoing elective pancreaticoduodenectomy (PD) was associated with POPF.

Methods
A single center retrospective analysis was performed on a prospectively maintained database. All consecutive patients undergoing PD between November 2015 and March 2021 were included. The cohort was stratified by the presence or absence of all grades of POPF. Univariate analysis compared the clinicopathological characteristics between the two groups. Variables found to be significant were subsequently included in a multivariate regression analysis.

Results
A total of 181 patients were identified including of whom 43 (23.8%) underwent vascular reconstruction. More patients who underwent vascular resection received neoadjuvant treatment (20.9% vs 4.3%, p <0.001). POPF was diagnosed in 68 (37.6%) patients (Grades A 14.4%, B 17.7%, C 5.5%). On univariate analysis vascular resection, the omission of pancreatic duct stenting, firm pancreatic texture and greater pancreatic duct diameter were significantly associated with a decreased incidence of POPF. On multivariate analysis, pancreatic duct stenting, firm gland texture and vascular reconstruction remained statistically significant (OR 0.231, -0.256, -0.140 respectively).

Conclusion
In the cohort presented here, vascular reconstruction was independently associated with a decreased incidence of POPF in patients undergoing PD.

10 A novel method to assess retinal displacement after retinal detachment repair using overlay of pre and post RD repair imaging.

Hashem Totah, Eduardu Roditi, Michael Potter, Koby Brosh
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Background
Retinal displacement after retinal detachment (RD) repair leads to worse functional outcomes. Hyperfluorescent lines on fundus autofluorescence (FAF) imaging, known as retinal vessel printings (RVP), are used to diagnose and quantify retinal displacement. However, there is a concern regarding the sensitivity and specificity of which FAF best detect retinal displacement. The purpose of this study is to describe a novel technique to assess post-RD retinal displacement and to compare it to the current method by FAF.

Methods
A retrospective study of patients with available infrared images before the occurrence of RD and after RD repair. Many landmarks of RPE and choroid were marked on both pre and post infrared photos extracted from Heidelberg OCT software. Overlay of pre and post infrared imaging was done based on the marked landmarks using a computer code for homography. A quick flipping mode between aligned pre and post imaging was done to verify stationary RPE and choroid landmarks. Additionally, overlay of the contralateral eye was done to validate this method. Two masked graders analyzed both FAF and overlays for retinal displacement characteristics.

Results
17 eyes of 16 patients were found to have pre-RD OCT available. 15 eyes had post-RD FAF available. The extent of retinal displacement was far greater as observed on the infrared overlay images with a mean number of displaced vessels of 1 in the FAF group and 2.65 in the infrared overlay group (p=0.00004). Qualitatively, the infrared overlay method was superior at demonstrating both the presence and extent of retinal displacement compared to FAF. Homography was able to perfectly align the infrared contralateral eye images in 100% of cases (8/8).

Conclusion
The detection of retinal displacement on FAF is critically important following RD repair, however, FAF clearly doesn't reveal the full extent of retinal displacement that is present. This study provides a novel technique of overlaying the pre-RD and post-RD repair infrared images generated by OCT that can improve the assessment of retinal displacement.

11 Femoral Component Design Influences Implant Subsidence

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Introduction
Commonly, displaced intra-capsular fractures in the elderly are treated using bipolar hemiarthroplasty, with either cemented or cementless fixation of the femoral component. Since cement can be associated with intraoperative morbidity due to the Bone Cement Implantation Syndrome, some surgeons prefer cementless implants. However, the risk of intraoperative fractures and implant subsidence are common complications when utilizing cementless implants. Since cementless implants have multiple stem designs, we questioned if the stem design can be related with these complication.

Methods
We retrospectivly reviewed hip hemiarthroplasties performed at our institution, all by arthroplasty surgeons. We compared 3 groups: 50 patient received a collarless straight tapered metaphyseal coated stem (group1), 50 patient received a collared double tapered metaphyseal stem (Group 2) and 34 patients received the same implant design without a collar (Group 3). We compared patient demographics, ASA score, intraoperative complications and radiographic assessment evaluation including implant subsidence, and proper sizing.

Results
The average subsidence of the different implants was of 0.5 cm (Group 1), 0.17 cm (Group 2), and 0.7 cm (group 3). The comparison between Group 2 and the two other groups was statistically significant. Intra-operative fracture rates were 4%, 6% and 8.8% respectively. The average follow-up for all groups was six months. Demographics were similar in all groups – female/male ratio was 59%, the operated side was left in 55% of the cases, the average age was 81.7 and the average ASA score was 2.7.

Conclusion
The collared double tapered stem (Group 2) had the least subsidence of all implants, with a similar rate of intra-operative fractures. The collar can prevent distal migration and crack propagation if such have happened during femoral broaching. It might also decrease the likelihood of intraoperative fractures, due to force dispersion over the medial calcar.

12 Effect of Intramedullary Nail Length on Recovery after Geriatric Subtrochanteric Fractures – a Retrospective Cohort Study

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Introduction
Subtrochanteric femoral fractures in the elderly population are commonly treated with intramedullary nails. Traditionally these fractures were treated with long nails (>235 mmm), but In recent years the use of medium length nails (200-235 mm) has been increasing, as they offer the advantage of a shorter surgery, and they do not often require medullary canal reaming. This study compared patients with long and medium length nails with regards to fracture healing, revisions and complications.

Methods
We analyzed all consecutive cases of low energy subtrochanteric fractures treated surgically at our institution between January 2016 and November 2020, and patient receiving medium (n=40) vs. long nails (n=69) were compared with regards to length of stay, time to painless ambulation, time to radiographic union and revision rate. Fracture severity was examined using the Seinsheimer classification.

Results
Length of stay was shorter (9.4 medium vs. 10.8 days long, P=0.17) and time to painless ambulation was shorter in the medium length group (4.3 vs 6.7 months; $p < 0.05$). Rate of complications and (20% medium vs. 17.4% long, P=0.73) time to union (6.8 vs. 7.3 months, P=0.67) were similar. No difference in revision rate was found (12.5% vs 11.5%, P=0.88). Nail length choice was not influenced by the severity of the fracture (for p=0.05).

Conclusions
This study shows that use of medium length nails for subtrochanteric fractures allows shorter time to painless ambulation and has a similar rate of complications and revisions. Therefore, they may be considered a reliable substitute for traditional long nails for fixation of subtrochanteric fractures.

13 Effect of Immediate Weight Bearing After Intramedullary Fixation of Geriatric Subtrochanteric Fractures – a Retrospective Cohort Study

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Introduction
Sub trochanteric fractures are inheritably unstable femur fractures requiring surgical fixation. Proximal femoral nail are commonly used for fracture fixation. Traditionally, these fractures were treated non-weight bearing. Recently it was suggested that allowing weight bearing immediately after surgery will not negatively affect the overall outcome. This study compares immediate weight bearing vs. limited or non-weight bearing with regards to patient outcomes.

Methods
We analyzed all consecutive cases of low energy subtrochanteric fractures treated surgically at our institution between January 2016 and November 2020. 109 cases were found, and we compared immediate vs delayed weight bearing with regards to length of stay, time to painless ambulation, time to radiographic fracture union and revision rates. Fracture severity was also examined using the Seinsheimer classification

Results
Length of stay (9.9 WBAT vs. 11.6 days delayed, P=0.054) and time to painless ambulation (4.7 WBAT vs 10.4 months delayed; p < 0.01) were shorter in the immediate weight bearing group. Time to radiographic union (7.5 WBAT vs. 8.2 months delayed, P= 0.65), and rate of complications was lower (14% WBAT vs. 26% delayed, p =0.14). No significant difference in revision rates was found. Seinsheimer class of the fracture had no influence on the decision to allow weight bearing (p=0.65)

Conclusions
This study shows that immediate weight bearing as tolerated had the advantage of shorter time to painless ambulation without statistical difference in the perioperative complications and length of hospital stay.

14 Very low volume of contrast material in pre-TAVI CT: How low can we get?

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Purpose
To evaluate and compare image quality of pre-TAVI (transaortic valve implantation) CT protocol of high-pitch protocol using weight adapted reduced contrast media (CM) vs. standard pre-TAVI protocol.

Methods
IRB approved retrospective analysis of 117 (73 females;mean age 81± 8) consecutive patients undergoing pre-TAVI CT on Siemens FORCE scanner. 95 patients (mean age 81±7;weight 70kg±13) using FLASH high-pitch single combined heart-aorta acquisition protocol. CM volume (Omnipaque 350) & injection rate administrated per weight. 23 patients (age 79±9;weight 80kg±24) had 2 scans, spiral cardiac followed by high-pitch aortic protocol with standard injection. In both groups, dose modulation used and scan triggered by bolus-tracking. Attenuation values (HU) and contrast-to-noise ratio (CNR) measured at aortic root, abdominal aorta and femorals. Diagnostic image quality considered sufficient at attenuation>200HU. Findings were subject to statistical analysis.

Results
There was no significant difference for age and weight between groups.CM volume and injection rate were significantly lower in FLASH group (39±9 ml/3±0.5 ml/sec vs. standard group 75±8 ml/4.2±0.8 ml/sec) (p<0.05). Image quality was diagnostic in FLASH and standard group respectively at root in 89(93%) and 19(82%) of patients, abdominal aorta in 94(99%) and 20(87%) and femoral in 85(89%) and 20(87%) (P=NS). Significant decrease in femorals attenuation and CNR in FLASH group (p<0.05). Patient weight and DLP were lower in FLASH group (p<0.05).

Conclusion
Single hig- pitch cardiac-aortic scan with weight adjusted injection allows significant CM volume and radiation dose reduction with decrease vessel attenuation in femoral arteries not significantly compromising image quality.

15 Gynecomastia and its Association with Prostate Cancer Prior to Treatment

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Aim of Study
To evaluate the association between the presence of gynecomastia and prostate cancer before initiation of therapy.

Methods
107 patients with pre-treatment Whole-body PET/CT Ga 68 PSMA scan were retrospectively collected. Gynecomastia was assessed by visual recognition and measurement of the breast glandular tissue diameter in the CT series of the PET/CT examinations and checked for its uptake in the PET series. The measurements were compared to the breast tissue diameter distribution in the general male population. The dimensions and SUVmax value of PET/CT PSMA uptake of primary prostate neoplasm were collected. Presence of lymphadenopathy and hematogenous metastases in PET/CT scans evident by uptake of PSMA were noted too.

Results
The mean value of breast tissue diameter of the study group, 1.98 cm, was significantly greater than the general population mean value, 1.23 cm ($p<0.001$). Comparing our results to the 90th and 95th percentile cutoff values of the general population – 2.2 cm and 2.8 cm respectively, the number of observed patients with radiologically diagnosed gynecomastia, 38/107 (35%) and 14/107 (13%) respectively, was significantly greater than expected, 10.7/107 (10%) and 5.4 (5%) respectively ($p<0.001$). The mean values of breast tissue diameter in the study population for the different age groups, 48-69, 70-79 and ≥ 80, were significantly larger than those of the general population ($p<0.001$). No statistically significant association between breast tissue diameter and other variables collected was found in our study.

Conclusion
The study has demonstrated a strong correlation between the presence of gynecomastia and prostate cancer in this study.

16 Quantitative Real-time PCR in Borrelia Persica Tick-Borne Relapsing Fever demonstrates correlation with the Jarisch-Herxheimer Reaction

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Objectives
Tick-borne relapsing fever (TBRF) in Israel is caused by the spirochete Borrelia persica. As in other diseases caused by spirochetal bacteria, the initiation of treatment in TBRF often leads to a systemic reaction, called the Jarisch Herxheimer reaction (JHR). The purpose of this study is to explore whether a correlation exists between the bacterial load of B. persica in TBRF, established by quantitative real-time PCR (RT-PCR), and the development of JHR after the initiation of antibiotic treatment.

Methods
Blood samples of patients discharged with a diagnosis of TBRF between 2009 and 2019 were stored for clinical purposes. The quantitative test of bacterial DNA was done by quantitative RT-PCR from these samples.

Results
Forty two patients diagnosed with TBRF were included in our study. Thirteen patients (31%) developed clinical JHR while being observed in the emergency department after the initiation of antibiotic treatment. The mean bacterial load, as established by RT-PCR, in patients who developed JHR was significantly greater than in those patients who did not develop JHR (443,293 copies vs. 140,598, $p=0.035$). Additionally, a positive thin blood smear also indicated a significantly elevated risk of developing JHR (odds ratio 5.72 [95% confidence interval 1.02-32.1], $p=0.047$).

Conclusions
A significant correlation was found between a greater bacterial load of B. persica, as indicated by the number of copies by RT-PCR, and the risk of developing JHR. Accordingly, positive blood smears, as well as RT-PCR, may assist clinicians in identifying patients at higher risk of JHR who require closer monitoring before discharge.

17 SARS-CoV-2 antibodies started to decline just four months after COVID-19 infection in a paediatric population

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Aim

We evaluated the prevalence of paediatric severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infections using antibody testing and characterised antibody titres by time from exposure.

Methods

This was a single-centre, prospective, cross-sectional cohort study. Patients under 18 years old were eligible to participate if they attended the paediatric emergency department at the tertiary Shaare Zedek Medical Center, Jerusalem, Israel, from 18 October 2020 to 12 January 2021 and required blood tests or intravenous access. SARS-CoV-2 seropositivity and antibody levels were tested by a dual-assay model.

Results

The study comprised 1,138 patients (56% male) with a mean age of 4.4 years (interquartile range 1.3-11.3). Anti-SARS-CoV-2 antibodies were found in 10% of the patients. Seropositivity increased with age and 41% of seropositive patients had no known exposure. Children under six years of age had higher initial antibody levels than older children, followed by a steeper decline. The seropositivity rate did not vary during the study, despite schools re-opening. The findings suggest that children's immunity may start falling four months after the initial infection

Conclusion

Immunity started falling after just four months, and re-opening schools did not affect infection rates. These findings could aid decisions about vaccinating paediatric populations and school closures.

Wilf Children's Hospital

18 The Pediatric Ulcerative Colitis Activity Index (PUCAI) predicts steroid-failure in adults with acute severe colitis

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Background

One-third of patients with acute severe ulcerative colitis (ASC) fail to respond to intravenous corticosteroids (IVCS) and require second-line therapy or colectomy. We aimed to explore the performance of the Pediatric Ulcerative Colitis Activity Index (PUCAI), for predicting response to IVCS in adults with ASC, and to base a two-step decision making process for guiding introduction of second-line therapy.

Methods

This was a retrospective multicenter cohort study of adult patients with ASC. PUCAI score, Oxford criteria and Swedish index were determined at baseline, day three and five of hospitalization, and at discharge when outcomes were ascertained.

Results

153 patients were included (mean age 34.7±14.6, median disease duration 7.8 years [IQR 0-17.4]), of whom 51 (33%) required second-line therapy, and 23 (15%) eventually underwent colectomy by discharge. At days three and five, the median PUCAI scores were higher in non-responders compared with responders (55 [45-69] vs. 38 [25-55] at day 3, and 55 [36-65] vs. 20 [5-30] at day 5; both $p<0.001$). The negative and positive predictive values (NPV and PPV) of IVCS failure were 76%/63% for the Oxford criteria, 83%/52% for Swedish index as determined on day three, and 73%/100% for PUCAI≥65 points on day five. The corresponding figures for PUCAI≥45 at day three were 83%/54%.

Conclusion

The PUCAI is a highly predictive tool for IVCS failure. PUCAI≥45 on day 3 has an excellent NPV for IVCS failure indicating preparation for second-line therapy, and PUCAI≥65 on day 5 has a high PPV to initiate the therapy.

19 Outcome of induction therapy with vedolizumab in children: results from the prospective, multi-centre VEDOKIDS study

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Background

Of the several biologics approved for use in Crohn's Disease (CD) and Ulcerative Colitis (UC), only anti-TNF drugs are approved in children. In this prospective multicenter VEDOKIDS study we evaluated the effectiveness and safety of vedolizumab to induce remission at week 14 in children with CD and UC.

Methods

We enrolled children (age 0-18 years) with CD or UC commenced on vedolizumab with a standardized dosing at 0, 2, 6 and 8 weeks thereafter. Explicit demographic, clinical and safety data were prospectively recorded. Steroid-free remission was defined as clinical remission (i.e. wPCDAI<12.5 or PUCAI<10) without steroids or EEN. Predictors of response were explored by multivariable logistic regression models.

Results

142 children were enrolled, 65 (46%) with CD and 77 (54%) with UC. Vedolizumab was the first biologic in 37 (26%) children, while 105 (74%) initiated vedolizumab after failing another biologic agent; 23 (17%) children failed to response to two prior biologics. The rate of SFR at week 6 was 18% and 34% for CD and UC, (p=0.06) and at week 14, 37% and 51%, respectively (p=0.2). The rate of SFR was higher in those who treated with vedolizumab as first biologic (31/96 [32%]) compared to those with prior biologic failure (22/43 [51%]; p=0.054).

In UC patients, every 10 points increase in the PUCAI score at initiation decreased the likelihood for achieving SFR by 7% (OR 0.93 [95%CI 0.88-0.99]). Furthermore, the likelihood of SFR at week 14 was double in children with UC who achieved SFR at week six, than those who did not (OR 2.0 [95%CI 1.6-2.5]). In CD, only SFR at week six predicted SFR at week 14 (OR 1.5 [95%CI 1.1-2.1]). By week 14, 27 adverse events (AE) in 22 (15%) children were reported as probably related to vedolizumab; none of the AE classified as severe. Two children discontinued treatment due to adverse events (dyspnea and leukocytoclastic vasculitis).

Conclusion

In this prospective multicenter study, vedolizumab was safe and effective for inducing remission in a refractory cohort of pediatric IBD, more so in UC. PUCAI score at baseline and SFR at week six predicted SFR at week 14.

20 How good are prediction models in pediatric ulcerative colitis? an inernational multicenter-prospective inception cohort study

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Background

Several groups have proposed models to predict disease outcomes in pediatric ulcerative colitis (UC), notably the PROTECT, Schechter et al and PIBD-ahead review, but none were externally validated. We aimed to explore these predictive models in an international multicenter prospective inception cohort of pediatric UC in order to assess the current treatment algorithm in pediatric UC.

Methods

We included children who were diagnosed with UC or inflammatory bowel disease-unspecified (IBD-U) at 17 medical centers from Europe, Israel and South Korea and followed them at three and 12 months thereafter as well as at last follow-up. Outcomes included steroid-free remission (SFR), sustained SFR (SSFR; defined as SFR at three and 12 months), acute severe colitis (ASC) and colectomy.

Results

A total of 223 children were included, of whom 74 (34%), 97 (43%) and 52 (23%) presented with mild, moderate and severe disease, respectively. The rate of SFR was 35% at three months and 47% at 12 months. Fifty-three (24%) children developed ASC during the first year from diagnosis, 36 (16%) during the first month from diagnosis; six (2.7%) children underwent colectomy. The sensitivity/specificity/PPV/NPV of the PROTECT model for predicting SFR at three months were 55%/59%/42%/71 and at 12 months 80%/29%/50%/62%. The sensitivity/specificity/PPV/NPV of Schechter's criteria to predict SSFR were 50%/60%/35%/74%. As per Schechter's criteria and PIBD-ahead review, PUCAI at baseline and three months predicted ASC.

Conclusion

None of the three main predictive models of remission in pediatric UC achieved sufficient accuracy. PUCAI score was the only variable to predict ASC. This highlights the necessity of external validation in any prediction model prior to its implementation in clinical practice.

21 Colectomy rates did not decrease in pediatric- and adult-onset ulcerative colitis during the biologics era - a nationwide study from the epi-IIRN

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Background: It is still debatable whether the advent of biologics is associated with a change in the natural history of ulcerative-colitis (UC). In this nationwide study we evaluated trends of long-term outcomes in all patients diagnosed with UC in Israel during the biologics era.

Methods: Data in the epi-IIRN cohort were retrieved from the four Israeli Health-Maintenance-Organizations (HMOs) covering 98% of the population, and linked to the Ministry of Health prospective registry on surgeries and hospitalizations. Joinpoint Regression and Kaplan Meier survival analyses were used, reporting annual average percentage change (AAPC) for each outcome.

Results: A total of 13,231 patients were diagnosed with UC since 2005 (1,426 [11%] pediatric-onset, 10,310 [78%] adults, 1,495 [11%] elderly) with 93,675 person-years follow-up. The probabilities of surgery after one, three and five years from diagnosis were 1.1%, 2.3% and 4.1%, respectively, and the corresponding rates of hospitalizations were 22%, 33% and 41%. The overall utilization of biologics in UC increased from 0.1% in 2005 to 9.6% in 2019 (AAPC 22.1%) and they were prescribed earlier during the disease course (median of 5.6 years [IQR 2.8-9.1] in 2005-2008 vs 0.8 years [0.4-1.5] in 2015-2018; p<0.001). Annual rates of surgeries (AAPC -1.3; p=0.6) and steroid-dependency (AAPC -1.2; p=0.3) remained unchanged, while hospitalizations rate slightly decreased (AAPC -1.2; p<0.001). Outcomes were consistently worse in pediatric-onset disease than in adults, despite higher utilization of biologics (28% vs 12%, respectively; p<0.001).

Conclusion During the biologics era rates of surgeries and steroid-dependency remained unchanged in patients with UC, while hospitalizations rate slightly decreased.

22 Pediatric Firearm injuries in Israel: A 10 year, single-center, descriptive study.

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Background
Injury resulting from firearms is a prominent public health issue associated with significant morbidity, mortality, and cost. Gunshot wounds (GSW) are a leading cause of injury-related death among children worldwide. This study describes pediatric GSW in Israel over the past decade, evaluating demographic and injury characteristics, as well as hospital treatment.

Methods
A single-center, retrospective analysis was performed on patients evaluated between June 2011 and June 2021 who were under the age 18 and being treated for firearm injuries. Details of their injury and management were collected and analyzed.

Results
There were 41 patients included in the study with a mean age of 13.9 years (range 2.5-17.9 years). Most of the patients were male (90.2%) and the majority of them were of Arab ethnicity (66%). The GSW in 44% of the cases were intentionally inflicted. In 34% of the cases the type of firearm used was unknown, an air-gun or BB gun was used in 34%, a rifle in 29%, and a handgun in 2%. Of the GSW inflicted in these cases, limb injuries were most common (46%), followed by head and neck injuries (37%), and finally trunk injuries (29%). Most pediatric patients (88%) were conscious upon arrival (GCS-15). Seventeen percent required life-saving procedures in the emergency room, 51% required surgery in the OR, and 20% required additional operations during hospitalization. All patients required hospital admission, with an average stay was 7.4 days (range 1-29 days), and 24% were admitted to the intensive care unit. 22% of patients received blood-products. A significant portion (29%) of the patients suffered long-term sequelae, 10% suffered permanent neurological damage, and one patient died (2%). Increased age and intentionally inflicted injuries were both associated risk factors for longer admission periods and increased risk of permanent damage.

Conclusion
This study is the first comprehensive description of pediatric firearm injuries from an institution in Israel. Understanding these injury outcomes will lead to better prevention, preparation, and management, as well as realistic expectations about prognosis.

23 The Impact of Patient and Family Background on Bracing Compliance in the Treatment of Idiopathic Clubfoot

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Background
The long-term use of a foot-abduction-brace (FAB) is crucial for prevention of recurrence in the treatment of clubfoot.

Objectives
The current study evaluates both child and parent background-factors and correlates them with documented compliance.

Methods
A single researcher interviewed parents of children who finished the period of FAB use (either by parental decision or medical advice). The uniform interview included child/parent background data as well as parental attitudes regarding the use of the FAB, compliance, and difficulties encountered during the years of treatment.

Results
Parents of 69 children were interviewed. Forty-nine (71%) of the children were males, 35 (51%) had bilateral clubfoot. Reported adherence to use of the brace clearly declined after the age of one year. Compliance with bracing did not significantly correlate with ethnicity, parental education, income, attitudes regarding bracing and child gender. Compliance correlated with higher parental age. Early brace abandonment was related to parents reporting problems with bracing.

Conclusions
This study reports low compliance with long-term use of the FAB. Background data and parental interview fail to predict non-compliance in most cases. Targeting Clubfoot Clinic efforts toward families with higher risk of non-compliance may improve long-term outcome. The crucial role of FAB in favorable long-term outcome warrants re-thinking and novel approaches.

24 The use of the Abduction-Dorsiflexion-Mechanism (ADM) in clubfoot: early experience.

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Background

Contemporary management of clubfoot consists of early serial application of plaster-casts and long term night-time bracing. As contrary to the obligatory bilateral design of boots-and-bar devices that are commonly used today, the ADM is a unilateral spring-hinged, unilateral, ankle-foot-orthosis. Thus, it may be an alternative to the use of foot-abduction braces (FABs). The ADM has very limited evidence of effectiveness in prevention of recurrence and compliance with its use. This device was suggested sporadically in this clubfoot clinic, for children/parents who were not using the FAB for various reasons (non-compliance, late recurrence, parental preference)

Goal

This is a preliminary retrospective study, collecting data of all children, in a single clubfoot clinic, who were offered the ADM for various indications.

Methods

All children that were offered to use the ADM were detected. Data regarding the indication, compliance and problems encountered, were all collected.

Results

Seventeen children were using the device (4 used it on both feet; 21 orthoses). During this period there were 346 new clubfoot cases (4.9%). Children were 1-9 years-old at the start of treatment, 4 were females (23%), and 9 were bilateral clubfoot cases (5 of them used unilateral ADM). Other 7 families were offered the ADM but did not purchase it. The duration of use is currently short (4-18 months), cracking of the device was reported by 2 families (replaced). Out of 17, only 2 families (11%) were reporting low compliance while all other children are using it compliantly.

Discussion

This is an early report of the use of the ADM as a substitute for the FAB as a night-time brace for clubfoot. The ADM is new and its indications haven't been established yet, thus it was suggested for children/parents objecting the use of the FAB. Compliance was found to be satisfactory so far.

25 D-Dimer as a Prognostic Factor in Patients Admitted to a Tertiary Care Intensive Coronary Care Unit

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Introduction: D-dimer is a small protein fragment and is a product of fibrinolysis. A high level of d-dimer has been suggested as a prognostic factor in cancerous patients. Nevertheless, its relevance in critically ill cardiac patients is scarce. We aimed to evaluate d-dimer levels and outcomes in patients admitted to a tertiary care intensive coronary care unit (ICCU).

Material and method: All patients admitted to the ICCU at the Sha'are Zedek Medical Center between January 1, 2020 and December 31, 2020 who had d-dimer level on admission were included in the study. Patients were divided into 2 groups: Low < 500 ng/ml and high d-dimer level ≥ 500 ng/ml on admission. Survival and in-hospital complications were evaluated.

Results and discussion: Overall 959 patients were included, 70% were males with a mean age was 67 (±16) years old. Of them 296 (31%) and 663 (69%) had low and high d-dimer levels on admission, respectively. Patients with high d-dimer level were older (mean age 70.4±15 vs. 59±13 years, respectively, p=0.004), had significantly higher rate of female gender (35.9% vs. 15.9%, respectively, p<0.0001) and significantly higher rate of cardiac interventions prior to their admission (26.7% vs. 4.4%, respectively, p<0.0001). Interestingly, patients with high d-dimer level had significantly lower rate of acute coronary syndromes (ACS) (25.7 vs. 66.4%, respectively, p<0.0001). All post-COVID-19 patients had high d-dimer level on admission. A multivariate cox proportional hazards analysis for mortality, adjusted for age, gender, risk factors for cardiovascular disease and ejection fraction <40% found that high d-dimer level was independently associated with higher mortality rate (HR=5.8; 95% CI; 1.7-19.1; p=0.004).

Conclusion: Elevated d-dimer levels on admission in ICCU patients is associated with higher morbidity and mortality in the first year following hospitalization.

26 Renal dysfunction at baseline may predict incident pulmonary hypertension and mortality among heart failure patients

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Introduction

Pulmonary hypertension (PH) is a complication of heart failure (HF) and determines worse prognosis. Increased vulnerability of the pulmonary vasculature may be involved in the pathogenesis of the development of heart failure related pulmonary hypertension. This vulnerability may be present in other organs. This study examined if renal dysfunction (RD) may predict incident pulmonary hypertension among HF patients.

Materials and methods

Ambulatory HF patients without PH were followed for incident PH, defined as tricuspid incompetence gradient (TIG)>40mmHg. Baseline variables including renal function were compared between groups with and without incident PH. Comparisons were performed using Pearson Chi-Square test. Cox proportional hazards model was applied to address the role of RD on incident PH or mortality (with incident PH as time-dependent variable).

Results and discussion

Among 179 HF patients, mean age 63, 70% male, 68% NYHA II-IV; incident PH occurred in 52 (29.1%). Patients with incident PH were older (mean age 68.6 vs. 60.5 years; p=0.002) with more ischemic heart disease (55.8% vs. 37.8%, p=0.027) and hypertension (48.1% vs. 31.5%, p=0.036). The baseline TIG was higher among the incident PH group (33 vs. 27mmHg, p<0.001). Patients in the incident PH group were treated with Fusid more widely (99.4% vs. 66.9%, p<0.001), other medications were similar between the groups. An inverse correlation was found between eGFR and PH rate (p=0.049). During a median follow up time of 993 days, 29 (16.2%) patients have died. The mortality rate was significantly higher in the PH group (26.9% vs. 11.8%, p=0.013). PH was significantly associated with all-cause mortality (p=0.031).

Conclusion

Renal dysfunction is an early marker for incident PH among HF patients. Incident PH is associated with increased long-term mortality. Vascular vulnerability (renal and pulmonary) may prime for subsequent injury and serve as a unifying mechanism.

27 Incidence and Predictors for Ventricular Arrhythmias in Acute Myocarditis Patients

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Background

The incidence and predictors of ventricular arrhythmias (VAs) have never been systematically investigated in acute myocarditis (AM) patients. Moreover, the monitoring level needed in these patients is debated.

Objective

Evaluate incidence and predictors for VAs in AM patients.

Methods

Computerized search of all patients hospitalized in Share Zedek Medical Center (SZMC) between 2000-2019 with AM as their admission diagnosis. Of these, only confirmed AM were included based on combination of suggestive symptoms, inflammatory markers, troponin, CT angiography or catheterization ruling out acute coronary lesion, and conclusive cardiac magnetic resonance (CMR) findings. Study's primary endpoint was all documented VA occurring during AM hospitalization. Predictors for VA were identified via univariate and multivariate cox regression analysis. The secondary endpoint was overall long-term mortality, derived from the Israeli Ministry of Internal Affairs death certificate databases.

Results

Out of 360 AM patients hospitalized, 128 patients (86% males, age 39.5 ±14.5 years) had confirmed AM, and thus included in our study. During AM hospitalization, 10 patients (7.8%) had VA, including VF (n=3), sustained VT (n=4), non-sustained VT (n=4). On univariate analysis, multiple parameters, assessed during presentation, were associated with VA, including: sinus tachycardia (P=0.004), atrial arrhythmia (P=0.03), dyspnea (P=0.034), hemodynamic instability (P=0.001), absence of chest pain (P=0.01), wide QRS (>110ms) (p=0.007), elevated WBC (p=0.043), and decreased LVEF (defined as ≤50%) (p<0.001). On multivariate analysis, dyspnea (OR 6.8; p 0.037), decreased LVEF (OR 7.9; p 0.03), wide QRS (OR 13.76; p 0.007) and hemodynamic instability (OR 8.89, p 0.049) were all independent predictors for VA during AM hospitalization. Long-term mortality among hospitalized AM patients with VA was higher compared with those without VA (P=0.006), assessed during median Follow-up period of 6.43 years [0.72, 19.4].

Conclusions

VA incidence during AM hospitalization was 7.8%. Multiple clinical, laboratory, ECG, and imaging parameters were associated with VA. Hemodynamic instability, wide QRS, and decreased LVEF on admission were found to predict VA. Importantly, VA presence during AM was associated with elevated long-term mortality. Thus, AM patients with the above features should be intensively monitored during AM hospitalization and frequent long-term follow-up should be considered to detect life-threatening VAs.

28 Cardiac Rehabilitation Program Following Transcatheter Aortic Valve Implantation – Mid and long Term Outcomes

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Introduction
Despite the expanding use of trans catheter aortic valve implantation (TAVI) worldwide, the literature is scarce as to the effect and the importance of cardiac rehabilitation (CR) following the procedure.

Aims
To evaluate the feasibility, safety, and outcome of CR program following transcatheter aortic valve implantation (TAVI).

Material & Methods
TAVI patients who underwent the procedure in Shaare Zedek Medical Center between 2008 – 2021 were included. Patient group in the CR program (CRG) were compared to Non CR group (NCRG) in a retrospective analysis including clinical and echocardiographic characteristics as well as short and mid-term outcomes.

Results
A total of 976 TAVI patients were included in our study. 103 (13.5%) of them participated in the rehabilitation program (CRG). The median CR program duration was 25 (9-52) weeks. NCRG patients were overall older (81.6±8 vs 79.6±6 y; p=0.010), had statistically more chronic renal disease (32% vs 17.5%; p=0.003) and clinically heart failure (35.2% vs 20.4%; p=0.003) as compared to CRG patients.
Mortality rates were significantly lower among CRG patients at 1 and 5 year follow up compare to NCRG (14.6% vs 33.9%; p<0.0001).

Conclusion
Cardiac Rehabilitation following TAVI is safe, well tolerated, and was associated with reduced mortality in mid and long term follow up.

29 Late manifestation of COVID-19 patients, are we heading to chronic COVID-19?

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Introduction
Data regarding clinical characteristics of patients presenting lately after being infected with Coronavirus disease (COVID-19) is scarce. The aim of the current study was to evaluate the clinical characteristics and outcomes of patients with confirmed COVID-19 presenting at least 14-day from symptoms onset.

Methods
A Prospective, single-center study, was conducted with confirmed Covid-19 patients presenting at Shaare Zedek Medical Center >14 days after symptoms onset, between March through June 2020. Patient demographics, clinical characteristics, and relevant risk factors were collected and compared with patients who presented early at the beginning of the pandemic.

Results
Overall 152 patients were included, of them 91 (59%) were male with a mean age of 67.6 ±13.5 years. Seventy-five (49.3%) patients presented early (< 14-day) after symptoms onset (the "early group") while seventy-seven (50.7%) patients presented late after symptoms onset (the "late group"). The most common symptoms at presentation in the early group were fever (n=62, 82.7%) and cough (n=47, 62.7%) compared with 16 (20.8%) and 8 (10.4%) in the late group, p<0.001. The most common presenting symptoms in the late group were chest pain (n=35, 45.5%) and shortness of breath (n=20, 26%). Cardiovascular outcomes occurred in 4 (5.3%) patients in the early group compared with 14 (18.2%) patients in the late group (p=0.02).

Conclusion
Patients presenting with late symptoms of COVID-19 infection, suffered more frequently from chest pain and shortness of breath as presenting symptoms and had more frequent cardiovascular outcomes as opposed to patients presenting with early symptoms. Future studies are needed to establish their true prevalence.

30 New vs. old-generation ACURATE Neo self-expanding valve: A decrease in safety events with an increase in post-procedural gradients?

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Background
Contemporary data comparing new versus old generation transcatheter heart valve (THV) devices are lacking with regard to several THV devices. We aimed to compare the safety and efficacy of old-generation ACURATE neo™ versus the newer generation device ACURATE neo2™ THVs (Boston Scientific) in patients undergoing transcatheter aortic valve implantation (TAVI).

Methods
An analysis of patients undergoing transfemoral TAVI with old-generation device ACURATE neo™ versus newer generation device ACURATE neo2™ from 2016 to 2021. The primary end point was early safety events at 30 days post valve implantation. Significant post implantation paravalvular leakage (PVL) was considered as >=moderate.

Results
A total of 214 patients were included in the evaluation, Median age was 82.0 (CI 80.0-83.0) in old-generation devices vs 83.0 (CI 78.0-85.0) in new generation devices (P=0.94), 38.3% were male, with 161 old-generation devices. Early safety events occurred less commonly in new-generation devices (3.6% vs. 17.3%, RR= 1.23, P=0.66). Permanent pacemakers were implanted within 30 days in 6% vs 9.43%, old vs new-generation respectively (P=0.21). Major vascular complications occurred more commonly in old-generation group 9.43% vs. 6% in the new-generation devices. (P= 0.57). More than mild PVL occurred in 27.2% vs 2, in old vs new-generation respectively (P <0.0001). Echocardiographic mean gradient post procedure was 9 mmHg (CI 8-10) in old-generation group vs. 12 (CI 9-13) in the new-generation group (P=0.001).

Conclusion
New-generation ACURATE neo2™ devices were associated with a trend towards less safety events, a result of numerically fewer vascular complications and less significant PVL. However, this new generation valve was also associated with higher residual gradients. This trend of decrease in PVL with an increase in gradients will be further studied.

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31 Acute MitralClip intervention in patients suffering from cardiogenic shock and severe mitral regurgitation in a tertiary care intensive coronary care unit

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Introduction: Cardiogenic shock (CS) is a high-acuity, complex, and hemodynamically critical state of end-organ hypoperfusion that is frequently associated with multisystem organ failure. For many years patient morbidity and mortality remain high, and there are only few evidence-based therapeutic interventions known to improve survival.
Patients suffering from CS and mitral regurgitation (MR) suffer from worse prognosis with higher mortality rates. We sought to evaluate acute valve intervention of the mitral valve using the MitralClip (MC) procedures in patients presenting with CS in a tertiary intensive coronary care unit (ICCU).

Method: We analyzed patients hospitalized in a tertiary intensive coronary care unit (ICCU) at the Shaare Zedek Medical Center between January 2020- June 2021 suffering from CS and severe MR who underwent acute MitralClip intervention.
Patients baseline characteristic were retrospectively collected from their medical records. Echocardiography evaluation for severe MR were used based on current guidelines and graded as mild, moderate, or severe. The society of cardiovascular angiography and interventions (SCAI) criteria were used to evaluate the severity of the CS. Echocardiography was performed in all patients the day after the procedure evaluating the change in the severity of the MR in addition to hemodynamic measurement performed immediately after the implantation using the V wave measurement. 30 days and 6-month mortality rates were recorded.

Results: 13 patients suffering from CS with MR who underwent acute MitraClip intervention were included. The average age was 70 years and 12 (92%) of the patients were male. All patients had IHD in the background and 12 (92%) of them suffered from acute MR or worsening of previous MR due to an ischemic trigger.
8 patients (61%) were classified as E – extreme category based on the SCAI criteria while 4 (31%) were classified in the C category.
12 out of the 13 patients survived at 30 days with mortality rate of 8%. All these 12 patients had survived at 6 months with the same survival rate at 6 months.
All patients experienced improvement in the MR severity grading with at least by one grade, with 6 (46%) had improvement from severe to mild. Average reduction of the V wave was by 15mmhg after the clip implantation.

Conclusions: Although patients with CS and severe MR had very high SCAI shock classifications, the use of MC was associated with a greater 30-day and 6-month survival rates compare to worldwide mortality rates of patients suffering from CS. This finding may change the previous paradigm that CS and MR associated with worse outcome, and we might be able to offer these patients a safe and effective therapeutic option.

32 Isolated PR prolongation in patients undergoing transcatheter aortic valve implantation.

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Background
New conduction disturbances requiring are common complications following transcatheter aortic valve implantation (TAVI). The last ESC guidelines recommended electrophysiological study or long term monitoring for patients with new LBBB above 150 ms or that is associated with PR prolongation (IIa indication) or the same (but with IIb recommendation) for patients with preexisting conduction abnormality and further PR or QRS prolongation. The data regarding the prognosis and management of patients with isolated PR prolongation is limited.

Methods
All patients undergoing TAVI at Shaare Zedek Medical Center were retrospectively reviewed. All patients underwent at least 1 ECG prior and daily post the procedure. Patients with isolated PR prolongation > 20 ms were included. While patients with preexisting permanent pacemaker (PPM), complete AV block or any QRS widening > 20 ms were excluded. Patient were followed for 1 year for the occurrence of syncope, PPM or death.

Results
Excluding patients with preprocedural PPM, 1036 were available for analysis. Of the first 494 reviewed 66 (13%) patients had isolated PR prolongation, of whom 47 (71%) and 19 (29%) had baseline narrow and wide QRS, respectively. During follow-up none of these 36 patients required in hospital PPM. During 1 year follow-up, 3 patients (4.5%) died and no one had syncopal episode or need for PPM.

Conclusion
Based on limited cohort analysis, isolated PR prolongation is not associated with an adverse outcome including syncope or progration to complete heart block and need for PPM at 1 year post the procedure. These finding may be considered when evaluating these patients post the procedure.

33 Angiographically Significant Coronary Artery Disease of non Infarct-related Artery in Patients with ST-Elevation Myocardial Infarction

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Background
There is sparse literature comparing patients with ST-elevation myocardial infarction (STEMI) and angiographically significant coronary artery disease (CAD) of non infarct-related artery (IRA) to those with IRA-only CAD. The aim of this study was to evaluate the prevalence, predictors, and outcome of patients with STEMI and angiographically significant CAD of non-IRA.

Methods
All consecutive STEMI patients who underwent primary percutaneous coronary intervention between 2000-2020 were included. Angiographically significant CAD was defined as >50% stenosis of the left main coronary artery and/or >90% stenosis for all other coronary arteries.

Results
2,663 (80.2%) patients had IRA-only CAD and 657 (19.8%) had angiographically significant non-IRA CAD. Independent predictors for non-IRA CAD were male gender (OR 1.34 [95% CI, 1.05-1.70[; P=0.021), age >50 years (OR 1.45 [95% CI, 1.11-1.91]; P=0.007) and diabetes mellitus (OR 1.56 [95% CI, 1.29-1.9]; P<0.001), while smoking (OR 0.83 [95% CI, 0.68-0.99]; P=0.004) and family history of CAD (OR 0.78 [95% CI, 0.62-0.98]; P=0.032) were found to be negatively associated with non-IRA CAD. In-hospital, 30-day, 1- and 5-year all-cause mortality were higher in patients with non-IRA CAD compared to IRA-only CAD (5.8% vs 2.5%, 8.5% vs 3.3%, 18.4% vs 7.6% and 36.3% vs 20.3%, respectively; P for all <0.001).

Conclusions
One-fifth of STEMI patients had angiographically significant non-IRA CAD. Older age, male gender, and diabetes mellitus were independent predictors for non-IRA CAD, while smoking and family history of CAD predicted IRA-only CAD. The presence of non-IRA CAD was associated with higher short- and long-term all-cause mortality rates.

34 Lead fixation mechanism impacts outcome of transvenous lead extraction: Data from the European Lead Extraction ConTRolled Registry (ELECTRa)

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Aims:
The aims of this study is to characterize the transvenous lead extraction (TLE) population with active (A) compared with passive fixation (PFix) leads and to compare the safety, efficacy, and ease of extracting active fixation (AFix) compared with PFix right atrial (RA) and right ventricular (RV) leads.

Methods and results:
The European Lead Extraction ConTRolled Registry (ELECTRa) was analyzed. Patients were divided into three groups; those with only AFix, only PFix, and combined Fix leads. Three outcomes were defined. Difficult extraction, complete radiological, and clinical success. Multivariate model was used to analyse the independent effect of Fix mechanism on these outcomes. The study included 2815 patients, 1456 (51.7%) with only AFix leads, 982 (34.9%) with only PFix leads, and 377 (13.4%) with combined Fix leads. Patients with AFix leads were younger with shorter lead dwelling time. Infection was the leading cause for TLE among the combined Fix group with lowest rates among AFix group. No difference in complications rates was noted between patients with only AFix vs. PFix leads. Overall, there were 1689 RA (1046 AFix and 643 PFix) and 2617 RV leads (1441 AFix and 1176 PFix). Multivariate model demonstrated that PFix is independently associated with more difficult extraction for both RA and RV leads, lower radiological success in the RA but has no effect on clinical success.

Conclusion:
Mechanism of Fix impact the ease of TLE of RA and RV leads and rates of complete radiological success in the RA but not clinical success. These findings should be considered during implantation and TLE procedures.

35 Improvement in Systolic Function in Heart Failure Patients with Reduced Ejection Fraction After Percutaneous Coronary Intervention; Impact on Long-term Survival

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Background
Coronary artery disease (CAD) is the leading cause of heart failure with reduced ejection fraction (HFrEF). While current guidelines recommend revascularization attempt with percutaneous coronary intervention (PCI) or coronary artery bypass grafting in patients with HFrEF and evidence of ischemia, there is only anecdotal evidence supporting its benefit. We assessed improvement in LVEF in patients with HFrEF and CAD in whom PCI was performed, and its impact on survival.

Methods
Consecutive patients with LVEF ≤40% who underwent PCI and had follow-up echocardiography at 1 to 24 months between the years 2000-2020 were included. Those with myocardial infarction (MI) at presentation, or with MI, coronary artery bypass surgery, resynchronization therapy or MitraClip implantation between baseline and follow-up echocardiography were excluded.

Results
A total of 100 patients were included with mean age 68.5±11.5 years; 12 (12%) were female. LVEF has improved by ≥10% in 16 (16%). Those with improved EF were less often females (9.5% vs 25.0%; P=0.081) and younger (67.8±11.4 vs 72.0±12.0 years; P=0.180). At a median follow-up time of 1,017 [559-1,910] days, mortality rate was 18.8% in the improved EF group and 46.4% in those without improvement (P=0.04). In a Multivariable Cox model including age, gender, hypertension, diabetes mellitus and renal failure, ≥10% LVEF improvement was independently associated with decreased mortality rate (HR=0.19 [95% CI, 0.56-0.67]; P=0.009).

Conclusions
In the majority of patients with HFrEF and CAD in whom PCI was performed, improvement in LVEF by ≥10% was not demonstrated. At long-term follow-up, mortality was significantly lower in those with improved LVEF.

36 Implantation of Cardiac Electronic Devices in Active COVID-19 Patients. Results from an International Survey

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Background
Cardiac implantable electronic device (CIED) implantation rates, as well as the clinical and procedural characteristics and outcomes in patients with known active COVID-19 are unknown.

Objective
To gather information regarding CIED procedures during active COVID-19, performed with personal protective equipment, based on an international survey.

Methods
Fifty-three centers from 13 countries across 4 continents provided information on 166 patients with known active COVID-19 who underwent a CIED procedure.

Results
CIED procedure rate in 133,655 hospitalized COVID-19 patients ranged from 0 to 16.2 per 1000 patients (p<0.001). Most devices were implanted due to high degree / complete AV block (112, 67.5%) or sick sinus syndrome (31, 18.7%). Of the166 patients surveyed, the 30-day complication rate was 13.9% and the 180-day mortality rate was 9.6%. One patient had a lethal outcome as a direct result of the procedure. Differences in patient and procedural characteristics and outcomes were found between Europe and North America. An older population (76.6 vs. 66 years, p<0.001) with a non-significant higher complication rate (16.5% vs. 7.7%, p=0.2) were observed in Europe, while a higher rate of critically ill patients (3.3% vs. 33.3%, p<0.001) and mortality (5% vs. 26.9%, p=0.002) were observed in North America.

Conclusion
CIED procedure rates during known active COVID-19 disease varied greatly from 0 to 16.2 per 1000 hospitalized COVID-19 patients worldwide. Patients with active COVID-19 infection who underwent CIED implantation had high complication and mortality rates. Operators should take into consideration these risks prior to proceeding with CIED implantation in active COVID-19 patients.

37 Anatomical Accuracy of the KODEX-EPD Novel 3D mapping system of the Left Atrium during Pulmonary Vein Isolation: a Correlation with Computer Tomography imaging.

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Background
A novel 3D mapping system (KODEX - EPD, EPD Solutions, Best, The Netherlands) enables catheter localization and real-time 3D cardiac mapping.

Objective
To evaluate left atrium (LA) anatomical mapping accuracy created by the KODEX-EPD system during pulmonary vein isolation (PVI) compared with gold standard computed tomography (CT) images acquired from the same patients prior to the procedure.

Methods
In 15 consecutive patients who underwent PVI, 3D mapping of the LA was created on the KODEX-EPD system using the Achieve catheter. Pulmonary vein (PV), posterior wall, and appendage anatomy and diameters, were compared to the CT 3D reconstruction measured on the CARTO 3 system. Measurements were done independently by 2 physicians in each method. Linear correlation and agreement between CT and EPD measurements were assessed by Spearman correlation and Bland-Altman plot.

Results
Mean LA mapping time was 7.73.6 min. Very high interobserver correlation was found for both EPD and CT measurements (Spearman-r 0.9). High correlation (r 0.75) was found between CT and EPD measurements. Bland-Altman plot method revealed that measurements assessed by EPD were slightly higher than those assessed by CT. Mean difference was 3.5mm, p<0.01. In 2 (13.5%) patients each, disagreement regarding the presence of a left common PV and a right middle accessory vein anatomy was seen.

Conclusion
The new KODEX-EPD mapping system allows quick and accurate mapping of the LA with high correlation to CT imaging. Some differences in left common and accessory right middle vein anatomy were seen.

38 The Value of a High CT Coronary Artery Calcium Score in the Management of Patients Presenting with Acute Chest Pain Vs. Stable Chest Pain

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Background

Contrast computerized tomography (CT) scan is occasionally aborted due to a high coronary artery calcium score (CACS). For the same CACS in our clinical practice we observed a higher occurrence of severe coronary artery disease (CAD) in patients with acute chest pain (ACP) compared to patients with stable chest pain (SCP). Since it is known that ACP differs in many ways from SCP, the aim of this study was to compare the predictive value of a high CACS for the diagnosis of severe CAD between ACP and SCP patients.

Methods

Single center observational retrospective study included consecutive patients who underwent cardiac CT for chest pain and were found to have a CACS of >200 Agatston units. Patients were divided into two groups, ACP and SCP. Severe CAD was defined as ≥70% stenosis on coronary CT angiography or invasive coronary angiography. Baseline characteristics and final diagnosis of severe CAD were compared.

Results

The cohort included 220 patients, 106 with ACP and 114 with SCP. ACP patients had higher severe CAD rates (60.4% vs. 36.8%; p<0.001). On multivariate analysis including cardiac risk factors, CACS >400 au (OR=2.34 95% CI[1.32-4.15]; p=0.004) and ACP (OR=2.54 95% CI[1.45-4.45]; p=0.001) were independent predictors of severe CAD. The addition of the clinical setting of ACP added significant incremental predictive value for severe stenosis.

Conclusion

A high CACS is more associated with severe CAD in patients presenting with ACP than SCP. The findings suggest that the CACS could impact the management of patients during the scan.

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39 Presentation and Clinical Outcomes of COVID-19 Pandemic among different ethnic and religious populations in the city of Jerusalem

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Background

The COVID-19 pandemic is an ongoing global pandemic. Jerusalem with its 919,400 inhabitants has a wide variety of populations, of which 62% are Jews (36% ultra-orthodox; 64% non-ultraorthodox) and 38% Arabs was largely affected by the pandemic. The aim of our study was to understand the different presentations, course and clinical outcomes in these different ethnical and cultural groups in Jerusalem in the COVID-19 pandemic.

Methods

We prospectively collected data of all COVID-19 patients admitted between March 9 - July 16, 2020 to the two main medical centers in Jerusalem. Demographic data, presenting symptoms, comorbid conditions, medications, physical examination, laboratory and imaging data as well as outcome at 30-day were systematically recorded. Patients were divided according to their religion and ethnicity into 3 main groups: 1) Ultra-Orthodox Jews; 2) other (non-Ultra-Orthodox) Jews and 3) Arabs.

Results

Six hundred and two patients comprised the study population. Of them the 361 (60%) were Ultra-Orthodox Jews; 166 (27.5%) non-Ultra-Orthodox Jews and 75 (12.5%) Arabs. The Arab patients were younger than the Ultra-Orthodox Jews and the non-Ultra-Orthodox Jews (51±18 year-old vs. 57±21 and 59±19, respectively, p<0.01), but suffered from significantly more co-morbidities. Fever, cough, dyspnea and fatigue, were more prominent, as presenting symptoms, in the Jewish patients as compared with the Arab patients. Moreover, hemodynamic shock, ischemic ECG changes and pathological chest x-ray were all more frequent in the Ultra-Orthodox patients as compared the other groups of patients. Being an Ultra-Orthodox was independently associated with significantly higher rate of Major Adverse Cardiovascular Events (MACE) [OR=1.96; 95% CI (1.03-3.71), p<0.05]. Nevertheless, age was the only independent risk factor associated with increased mortality rate [OR=1.10; 95% CI (1.07 - 1.13), p<0.001].

Conclusions

The COVID-19 pandemic in Jerusalem, affect different ethnical and cultural groups differently, with the Ultra-Orthodox Jews mostly affected, by admission rates, presenting symptoms clinical course and MACE. Nevertheless, age was the only independent characteristic associated with increased mortality. It is conceivable that vulnerable populations need special attention and health planning in time of pandemic, to prevent rapid distribution and severe morbidity.

40 Usefulness of Serial Six-Minute Walk Test in Ambulatory Heart Failure Patients

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Introduction: The 6MWT (6-minutes walk test) is an easy and safe sub-maximal test for functional capacity. A single test was found to be a good prognostic marker for HF morbidity and mortality. However, 6MWT results may change during the ambulatory course. We examined repetitive 6MWT in ambulatory HF (heart failure) patients for variance, trends, and correlation with clinical outcomes.

Material and method: The 6MWT is done routinely in our HF clinic. Patients who had ≥ 3 6MWD(6-minutes' walk distance) measurements were included. For each patient's 6MWTs, ratio between current distance to median of all previous tests was pooled. The Total ratio for each patient was defined as the mean of all ratios. Patients were considered to deteriorate function if the total ratio was below 0.95.

Results and discussion: For 377 patients (mean(±SD) age 65.9±15 years, 29.4% females) there were 8.05±5.259 6MWT measurements per patient. Overall mean 6MWD improved between HF clinic visits but with significant individual variability**.** The total 6MWD ratio distributed normally: mean (±SD) 1.07±0.21. There were 75(19.9%) patients that overall worsened 6MWD (total ratio<0.95). During median follow up of 978[591-1516] days, crude mortality rate was 13.5%. Worsened patients' mortality was higher (25.3% vs 10.6%) (p<0.001). Using the multivariable cox model including baseline 6MWD, number of tests, age, gender and reduced LV function - overall worsening the 6MWD by more than 5% was found to be independently associated with increased mortality rate (HR=2.53 95%CI[1.29-4.98] p=0.007.

Conclusion: Overall deterioration in 6MWD was associated with poorer outcomes, supporting the prognostic value of repetitive 6MWT measurements over a single test.

41 Prospective Evaluation of Commissural Alignment of Balloon-Expandable Transcatheter Heart Valves utilizing Pre- and Post-Procedure Computed-Tomogrpahy: Active Cath-Lab Alignment vs. Control from the ALIGN trial

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Background

Previous studies suggested that bioprosthetic valve commissural alignment may improve device performance in patients undergoing transcatheter aortic valve implantation (TAVI). However, no cath-lab method for correct commissural alignment of balloon-expandable valves was described to-date. Our aim is to evaluate the impact of a predefined patient specific crimped SAPIEN 3 orientation on its final implant orientation in relation to original valve commissures and overlap with coronary arteries as demonstrated by cardiac computed tomography (CT) in tricuspid aortic valve stenosis patients.

Methods and Results

A prospective study of patients undergoing TAVI with SAPIEN 3 (Edwards Lifesciences), including post procedure cardiac CT. Patients were divided to 2 groups: a group in which the SAPIEN 3 was crimped before implantation in a pre-defined position, and a control group with conventional valve deployment. All patients underwent pre and post TAVI cardiac CT, which were evaluated by cardiac imaging experts that were blinded to the method of valve deployment. A total of thirty eight patients were prospectively evaluated before and after TAVI with SAPIEN 3 (77.3±8.17 years, 67% male, STS PROM 4.2%±3.2%). Patients in the active alignment group had more correct commissural alignment . Severe commissural misalignment occurred in 4/17 patients (23.5%) of the active alignment group vs. 12/21 patients (57.1%) in the control (p=0.037); 75% (3 out of 4) of the severe commissural misalignment in the active alignment group occurred in patients with severely horizontal aorta (angulation >60 degrees).

Conclusion

This is probably the first study that shows that patient-specific initial crimped orientation of balloon-expandable TAVI may improve our ability to have correct commissural alignment of the implanted valve. Our prospective study continues to recruit patients and updated study results will be presented.

42 The Prevalence and Characteristics of Patients with ST-Segment Elevation Myocardial Infarction During the First Two Months of the COVID-19 Pandemic

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Background
ST-Segment elevation myocardial infarction (STEMI) is one of the leading cause of mortality in the western world. The coronavirus disease-2019 (COVID-19) pandemic might have implications of the treatment of STEMI patients. Our aim was to evaluate the treatment of STEMI patients during 2 months of the COVID-19 pandemic as compared with the year before.

Methods
Data of 90 STEMI patients treated at the Shaare Zedek Medical Center intensive coronary care unit (ICCU) Between March-April 2019 (pre COVID-19 group) and March-April 2020 (COVID-19 era group) were collected. Data regarding complications upon arrival and during hospitalization, door to balloon time and echocardiographic exams were collected.

Results
Fifty-one (56%) patients were admitted with STEMI in the pre COVID-19 group and only 39 (44%) in the COVID-19 era group. Of them 13.7% vs. 20.5% were female, p=0.392 with a mean age of 62.1 (±13.5) vs. 63.4 (±11) years old, p=0.635 in the pre vs. post COVID-19 era group, respectively. Interestingly, more Jewish vs. non-Jewish were admitted with STEMI in the COVID-19 era group. There were no differences regarding baseline characteristics, catheterization access, culprit vessel and percutaneous coronary intervention rate. Door to balloon time was also similar in both pre and post COVID-19 era groups [35.4 (±32) vs. 30.5 (±29.1) minutes, respectively, p=0.896]. Moreover, there was no difference regarding infarct size. Complications including acute renal failure, cardiogenic shock, and the use of intra-aortic balloon pump were similar in both groups. 30-day mortality rate was low and similar in both pre and post COVID-19 era groups (5.9% vs. 2.6%, respectively, p=0.426).

Conclusions
During the beginning of COVID-19 era there was a reduction in STEMI admission rate, while no significant difference was found regarding baseline characteristics, door to balloon time, infarct size and mortality rate.

43 Hypoalbuminemia as a Prognostic Factor in Patients Admitted to a Tertiary Care Intensive Coronary Care Unit

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Introduction
Hypoalbuminemia is common among acute and chronic diseases. It has been proposed as a potential biomarker of frailty, which itself is associated with worse outcomes in hospitalized and critically ill patients. However, data regarding hypoalbuminemia in intensive coronary care unit (ICCU) patients is scarce.

Material and method
All patients admitted to the ICCU at Sha'are Zedek Medical Center between January 1, 2020 and December 31, 2020 were included in the study. Patients were divided into 3 groups according to their basic albumin level. Low albumin level < 3 g/dL, intermediate albumin level 3 g/dL≤ albumin≤ 4 g/dL and high albumin level >4 g/dL. Survival, in hospital interventions and complications were compared.

Results and discussion
Overall 1,082 consecutive patients were included, mean age was 67 (±16) and 70% were males. Of them 8% had low albumin level, 71% had intermediate albumin level and 20% had good albumin level. As compared with intermediate and high albumin levels, low albumin level was associated with higher rate of bleeding (11.4%, 6% & 1.4% respectively, p=0.002); sepsis (5.7%, 1.2% & 1% respectively, p=0.004); mechanical ventilation (20.5%, 4.9% & 4.3% respectively, p<0.0001); use of intra-aortic balloon pump (IABP) (9.1%, 1.9% & 0.5% respectively, p<0.0001) and cardiopulmonary resuscitation (CPR) (14.8%, 1.9% & 0.5%, respectively, p<0.001). A multivariate Cox proportional hazards analysis found that low albumin level was independently associated with increased mortality risk as compared with high albumin level (HR=9.5; 95% CI: 3.2-25.5, p<0.001). Intermediate albumin level as compared with high albumin level, had a trend towards increased mortality risk, although it did not reach statistical significance (HR=2.1; 95% CI: 0.9-5.6, p=0.09).

Conclusion
As with other morbid conditions, hypoalbuminemia in ICCU patients is a poor prognostic factor of in-hospital morbidity and complications and for mortality in the first year of hospitalization.

44 Echocardiographic Assessment of COVID-19 Diagnosed Patients and the Association between Cardiac Pathology and Outcomes using the POCUS Approach

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Background
The association between COVID-19 infection and the cardiovascular system has been well described. Strict precautions limit the use of formal echocardiography (echo) in this setting. Information on the importance of the utilization of Point-of-care ultrasound (POCUS) approach echo in these patients is scarce.

Aims
To investigate the utilization of hand-held echo in COVID-19 hospitalized patients and the association between cardiac pathologies and outcomes.

Methods
Consecutive COVID-19 diagnosed patients underwent echo evaluation within 24 hours of admission at our institute, during March-May 2020. According to the echo results, the patients were divided into 2 groups: Normal and Abnormal (included left and right ventricular dysfunction or enlargement, or moderate/severe valvular regurgitation/stenosis).

Results
Among 102 patients, 26 (25.5%) had an abnormal echo study. They were older, with more co-morbidities, cardiovascular disease history, chronic medical therapy and with worse presenting manifestations, as compared to counterparts with normal echo. Multivariate logistic regression analysis adjusting for pertinent variables revealed that abnormal echo at presentation was independently associated with the composite endpoint OR=4.63 (95% CI 1.51-14.15, p=0.007).

Conclusions
Abnormal echo results in COVID-19 infection settings is associated with more comorbidities and independently predicts major adverse endpoints. POCUS approached hand-held echo at presentation can be utilized as an important tool for risk stratification for hospitalized COVID-19 patients.

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45 The Utilization, Safety and Feasibility of Echocardiographic Assessment of COVID-19 patients using the POCUS approach

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Background
The association between COVID-19 infection and the cardiovascular system necessitate the use of cardiac imaging in selected patients. Strict precautions requirements limit the use of formal complete echocardiography (echo) in this setting. Information on the utilization, safety and quality of Point-of-care ultrasound (POCUS) approached echo in these patients is scarce.

Aims
To investigate the safety, technical aspects and quality indices of hand-held echo in COVID-19 infection settings.

Methods
Consecutive COVID-19 diagnosed patients underwent echo evaluation by cardiologists or ICU physicians. Following each examination, the operators recorded a series of technical parameters and graded individual experience aspects. The acquired examinations were further analyzed by a blinded echo expert for quality, proper acquisition, and right ventricular demonstration.

Results
Among 103 patients recruited to the trial, 66 (64%) were male. Their mean age was 60±18, with a BMI of 28±6 and a heart rate of 79±13. 29 (28%) of the patients couldn't turn left and 23 (22%) couldn't maintain an effective communication. The mean length of study was 9.8±3.5 minutes, and the battery usage was 14±5%. All predefined echo views were fully completed in 76% of examinations and the mean proximity between the operator and patient heads was 60±11 cm. Individual and quality indices are presented in figure. The correlation between operator and expert assessments for: test quality, r=0.552 (p=0.001); and LVEF, r=0.608 (p<0.001).

Conclusion
POCUS approached hand-held echo is safe and reasonable alternative for complete formal echo evaluation in COVID-19 infection settings with less than 10% of cases categorized as poor quality, acquisition or RV demonstration.

46 Fast track dedicated IBD clinic: A new concept in the Israeli army

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Background
Cirrhosis is the final pathological outcome of many chronic liver diseases. Cirrhotic patients are at an increased risk for significant morbidity and mortality. Novel predictors of prognosis in cirrhotic patients have been emerging during recent years and studies show that the lactate/albumin ratio can serve as an early prognostic marker in different patient groups. In this study, we aimed to uncover the clinical significance of the Lactate/Albumin ratio in hospitalized patients with acutely decompensated cirrhosis.

Methods
We conducted a retrospective single-center cohort study in a tertiary medical center in Jerusalem, Israel. Included in the study were subjects with an established diagnosis of liver cirrhosis that were admitted to the ICU or the Internal Medicine department with a clinical picture of acute-on-chronic liver failure between the years 2010-2021, two hundred seventy-nine patients were included in this study. The primary outcome of this study was to assess whether lactate/albumin ratio may be used as a prognostic marker to predict morbidity & mortality in hospitalized cirrhotic patients with acute-on-chronic hepatic failure.

Results
Univariate analysis revealed that mean WBC count, Platelet/Creatinine ratio, Aspartate Transaminase AST, Lactate, and MELD Score were all significantly associated with the primary outcome. Multivariate analysis was then performed and showed that the lactate/albumin ratio was the strongest statistically significant ($p<0.001$) predictor of death during hospitalization - OR 13.196 (95% CI 3.6-48.3), followed by mean WBC count, MELD score, and serum lactate levels. A ROC curve was built which showed an area under the curve (AUC) equal to 0.77. Crosstabs from the ROC showed a sensitivity of 66.7% and a specificity of 76.2% when the lactate/albumin ratio chosen as a cutoff was 0.90616.

Conclusion
Elevated lactate/Albumin ratio predicts in-hospital mortality in hospitalized patients with acute-on-chronic hepatic failure.

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47 Fast track dedicated IBD clinic: A new concept in the Israeli army

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Background
Inflammatory bowel diseases (IBD) are commonly diagnosed within 6-24 months since symptom-onset. This delay may result in significant medical, social and economical consequences. The Israeli Defense forces (IDF) founded a dedicated, direct referral clinic for a fast-track to diagnose IBD.

Aim
To compare the usage of a fast track IBD clinic to patients who use the regular medical system.

Method
A Retrospective study of 73 patients referred to the fast track clinic between 2018-2020 was performed. We compared the fast track patients diagnosed with IBD, to all other IBD patients diagnosed not through this clinic. The IBD patients were also compared to patients whom underwent the fast track clinic, who did not eventually have IBD.

Results
Out of seventy three patients, 24 were diagnosed with IBD, and 40 patients received other diagnoses. Average 71 days passed from symptom onset until the meeting with primary care physician (PCP). The average duration of diagnosis from the first PCP meeting was 162 days in the rapid track vs. 311 days in other clinics, ($P=0.047$). The average duration from the first gastroenterologist meeting to the diagnosis was 36 days in the rapid track vs. 148 days in other gastro clinics, ($P=0.01$). When comparing the patients diagnosed with IBD to other diagnoses from the fast track clinic, bloody stools (48% vs. 18%, $p=0.01$), peri-anal disease (36% vs. 13%, $p=0.03$) and the absence of abdominal pain (24% vs. 3%, $p=0.009$) were all respectively related to increased risk for IBD. Symptom duration, pain location, stool frequency, weight loss and family history of IBD did not correlate with an IBD diagnosis. Mean CRP (27.51 vs. 4.71, $P=0.0001$), fecal Calprotectin (1135.44 vs.140.33, $P<0.0001$), and platelets >300 (52% vs. 8%, $P=0.003$ were higher in the IBD compared to other diagnoses, respectively.

Conclusion
The rapid track clinic for IBD significantly shortens the time from symptom onset and first PCP referral to final diagnosis. A dedicated clinic should be considered in other fields too.

Division of Internal Medicine

48 Factors that affect pain management in adults diagnosed with acute appendicitis in the Emergency Department: A retrospective comparative study

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Background

It is universally accepted that analgesic treatment, including with opioids, can safely be given to patients with abdominal pain who are suspected of having a surgical diagnosis such as appendicitis.

The primary objective of this study was to examine factors which may influence the treatment of pain in appendicitis in adults in the emergency department (ED). A secondary objective was to determine if pain management affected patient outcomes.

Methods

This single-center retrospective study examined medical records from a tertiary medical center of adult patients with a discharge diagnosis of appendicitis from March 23, 2017, through February 2, 2021. Patients were categorized based on the type of analgesia received in the ED. Variables included the time of presentation, gender, age, and triage pain scale, as well as time to ED discharge, imaging, operation, and hospital discharge. Multivariate logistic regression models were performed to determine which factors influenced treatment and affected outcomes.

Results

Records of 1,839 patients were categorized into three groups - 883 (48%) did not receive analgesia, 571 (31%) received only non-opioid medications, and 385 (21%) received at least one opioid. Patients with a higher pain triage category were treated more often with opioids (4-6: OR 1.85, 7-9: OR 3.36, 10: OR 10.78; p<0.01). Male gender was associated with less analgesic treatment (OR 0.74, p<0.01), but more opioid treatment when given (OR 1.87; p<0.01). Patients aged 65 and older were less likely to receive opioids (25-44 years old: OR 1.47; p=0.02, 45-64 years old: 1.78; p=0.01). Presentation to the ED on Sundays was associated with lower rates of opioid treatment (OR 0.63; p=0.025). Regarding clinical outcomes, patients who received analgesia waited longer for imaging (+0.58h; p<0.01), stayed longer in the ED (+2.2h; p<0.01), and had a slightly longer hospitalization (+0.62d; p<0.01).

Conclusions

This study found that almost half of ED patients with appendicitis didn't receive any analgesia, with most of those treated receiving only non-opioid analgesia. Age 65 and older and presenting on Sundays were associated with less opioid treatment. Patients who received analgesia waited longer for imaging, stayed longer in the ED, and had a longer hospitalization.

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49 Markers of inflammation and alpha degranulation defect of platelets in patients with Gaucher disease show

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Background

Flow cytometry enables studies of the activation state of circulating platelets and the reactivity of circulating platelets in response to various platelet agonists and has several advantages over light aggregometry. Most importantly for the present study, platelets of patients with thrombocytopenia can also be accurately analyzed.

Methods

We studied unstimulated and stimulated activation markers on platelets, i.e., αIIbβ3 integrin (PAC1), P-selectin (CD62P), and lysosomal-associated membrane protein (LAMP3/CD63), in 194 patients with Gaucher disease (GD). To determine whether levels of platelet activation markers were altered in vivo (i.e., without ex vivo stimulation), we studied the surface activation of these markers on unstimulated platelets.

Results

Patients with GD had a higher expression of CD63, median 8.12% (range 0.20%-63%), compared to the reference range (p<0.001). Splenecotmized GD patients had higher expression of PAC1 and P-selectin, 9% (0.75%-81.6%) and 2.1% (0.11%-71.53%), compared to those with intact spleen, 1.9% (0.02%-41.66%) and 0.42% (0.01%-14.53%) (p<0.001). To determine the capacity of platelets to respond to stimulation, we tested platelet reactivity in response to ex vivo agonist stimulation. Reduced platelet reactivity (-2 SD of reference range) was found in 104 (53%, 95% CI 46%-61%) patients, of whom 16 (8.25%, 95% CI 4.8%-13%) had more severe platelet dysfunction. In a multivariate model, only lyso-Gb1 levels were associated with the more severe platelet dysfunction. Platelet dysfunction was also found in patients receiving many years of GD-specific therapy. Sixty-one (46%) of 131 adult patients who completed the bleeding tendency questionnaire reported positive bleeding history. In a multivariate logistic model, older age (OR (95% CI), 1.07 (1.2-1.12)) and low P-selectin reactivity (OR (95% CI), 2.04 (1.25-3.46)) were associated bleeding tendency.

Conclusion

We recommend adding platelet flow cytometry to the assessment before interventional procedures. Further studies are planned to understand the degranulation defect and the In vivo increased CD63 expression on platelets of patients with GD.

50 Upgrading the evidence for the use of ambroxol in Gaucher disease and GBA related Parkinson: Investigator initiated registry based on real life data

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Background

Ambroxol hydrochloride is an oral mucolytic drug available over-the-counter for many years as a cough medicine. In 2009 it was found to also act as a pharmacological chaperone (PC) for mutant glucocerebrosidase, albeit in a several-fold higher dose. Unfortunately, there have been no pharma-driven clinical trials to establish the use of ambroxol. Thus, real world data (observational data) are needed on the safety and efficacy of ambroxol for patients with Gaucher disease (GD) and GBA-Parkinson disease (PD).

Methods

Clinicians with patients treated with ambroxol for GD and GBA-PD were approached to collaborate in an investigator-initiated registry. Anonymized data were collected, including demographics, GD type, and GD-specific therapy (when applicable), adverse events (AEs), and, when available, also efficacy data.

Results

We report the data of the first 41 patients (25 females) at a median (range) age 17 (1.5-74) from 13 centers; 11 with GD type 1(4 diagnosed with PD), 27 with neuronopathic GD (nGD), and three GBA carriers with PD. The median (range) treatment period and maximum dose of ambroxol were 19 (1-76) months and 435 (75-1485) mg/day, respectively. One patient with GD2 died of her disease. No other serious AEs were reported. Twelve patients experienced AE, including minor bowel discomfort, cough, allergic reaction, mild proteinuria, dizziness and disease progression. Clinical benefits were reported in 25 patients including stable or improved neurological status, increased physical activity, and reduced fatigue.

Conclusion: Until the approval of specific therapies for nGD and disease-modification for GBA-related PD, these preliminary data may be encouraging to physicians and patients who consider an off-label use of ambroxol.

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Division of Internal Medicine

51 Prodromal Parkinsonian features in GBA1 variant carriers

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Introduction

Of the various genetic risk factors to develop Parkinson's disease (PD), carriers of GBA gene variants (GBA-carriers) are the most common and account for approximately 16% of all patients with PD. It has become evident that several prodromal features may appear 15 to 20 years before the development of the typical motor symptoms of PD. Thus, we initiated a screening study for prodromal features in a large cohort of sequence-proven GBA-carriers with the aim to build a model for identification of a cohort at high risk for PD, and to identify those tests with the highest predictive value.

Methods

GBA-carriers between the ages of 40-75 years are invited to undergo non-invasive tests to assess different domains of PD, including anatomy, cognitive and mental, sleep disorder and motor. In addition, blood is drawn for confirmation of GBA-carrier status and for future analysis.

Results

Herein we report the first 98 subjects (40 males; median age 51 years) enrolled to the study. Twenty-five had at least one relative (1st/2nd degree) with PD. Abnormal REM sleep behavior disorder, UPDRSIII, Epworth Sleepiness Scale (ESS), UPSIT smell test, substantia nigra ultrasound hyper-echogenicity and Montreal Cognitive Assessment (MoCA) were found in 9, 10, 12, 14, 17 and 23 participants, respectively.

Correlations were found in and between tests from different domains. To define the risk for prodromal PD, we assessed the 10th percentile of each test and detected the outliers, and then calculated the percentage of outliers for each subject. The median [range] outliers were 4.65 [0-50] %, and > 5% outliers were associated with older age and family history of PD.

Discussion

We were able to identify 20 subjects with more than 15% outliers who would be eligible for our planned interventional study aimed to delay the onset or even prevent the emergence of motor PD.

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52 Availability, timeliness, documentation and quality of consultations among hospital departments: a prospective, comparative study

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Background: Many in-patients require care from practitioners in various disciplines. Consultations most probably have significant implications for hospitalization outcomes.

Purpose: To determine key aspects of consultations provided by various departments to formulate an optimal policy.

Methods: This study comprised two methods: first, a questionnaire was completed in 2019 by 127 physicians interns, residents and senior doctors) from the medical and surgical departments (64 from the surgical wards, 43 from the medical wards and 22 from the emergency room and General ICU) regarding the availability, timeliness and documentation rate of the consultations they received from different disciplines. The investigators rounded through the various departments that were included in the study and they accosted a sample of interns, residents and attending physicians, who were then asked to fill the questionnaire. Overall compliance of filling the questionnaire was about 95%. Residents accounted for 72% of the filled questionnaires, seniors and interns accounted for 15% and 13% respectively. Second, a convenience sample of 300 electronic records of hospitalized patients (135 from the surgical wards, 129 from the Medical wards and 36 from the emergency room and General ICU) of actually carried out consultations was reviewed for validated indicators of quality for both the consultation request and response. We used a 5-point Likert scale, ranging from poor (1) to superb (5), to grade the measured parameters.

Results: The availability, timeliness and documentation rate for medical consultations were 4±0.9, 4.1±0.9 and 4.3±0.9 respectively, as compared with surgical consultations 3.2±1.1, 3.4±1.2 and 3.6±1.2 respectively (P<0.001). The mean time (in hours) from the consultation request till documentation (of the requested consultation) by consultants in the medical and surgical departments was 3.9±5.9 and 10.0±15.6, respectively (P <0.001). The quality of requests of consultations from the medical and surgical departments was 3.4±1.1 and 2.8±1.2, respectively (P <0.001). Two different models of consultations are employed: while each medical department adopts several departments for medical consultations, each day's on-call surgeon provides all the hospital's surgical consultations.

Conclusion: We detected significant differences in key aspects of consultations provided by the departments. The of consultations, in which each medical department adopts several other wards to which it provides consulting services upon request, should probably be adopted as a major policy decision by hospitals directors to enhance inter-departmental consultations.

Division of Internal Medicine

53 Morbidity among Arab-Israeli and Palestinian Hajj Pilgrims – a prospective study

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Background

Thousands of Palestinian and Arab-Israeli pilgrims make their way to Mecca each year to complete their pilgrimage, the majority of whom are elderly with substantial baseline morbidity. We prospectively investigated the occurrence of health problems among Arab-Israeli and Palestinian Hajjis who traveled to complete their Pilgrimage during the 2019 Hajj season.

Methods

A prospective observational questionnaire-based study. Questionnaires were distributed to Hajj pilgrims within less than one month before travel - inquiring on demographics, method of travel, and medical comorbidities; and then 1 and 4 weeks after returning recording any health problem during or after their travel.

Results

nitial recruitment included 111 Hajjis. Among them, 104 (93.7%) completed the post-travel questionnaire. Respondents had a mean age of 49.5 (+ 9.137) years with a M:F ratio of 1.3:1. The mean travel duration was 18.7 days (13-36d). Altogether, 66.3% of the pilgrims reported at least one health problem during and after the trip, of which 38.6% sought medical attention. Five (4.8%) hajjis were hospitalized and three (2.9%) had life-threatening conditions. Cough was the most common complaint (53.8%), 11.5% also reported having fever and cough. Pre-travel counseling received by 62.2% of Hajjis was associated with a reduced number of outpatient and Emergency Room visits.

Conclusion

A high rate of morbidity was reported among this cohort of Hajj pilgrims with a morbidity spectrum similar to pilgrims from other countries. Pre-travel consultation with the purpose of educating the pilgrims on the potential health risks of Hajj may help reduce the morbidity for future Hajj seasons.

54 Cell free DNA among COPD patients with stable disease and with acute exacerbation

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Background

COPD is diagnosed by persistent respiratory symptoms and airflow limitation. COPD exacerbation is a clinical diagnosis. There is no blood biomarker that can distinguish stable COPD disease from acute exacerbation. The presence of cell free DNA (cfDNA) is a known marker for tissue damage and cell death. The main method to identify the origin of the cfDNA is done by gene methylation. Different DNA methylation pattern can distinguish between cell types. DNA from lung cells is rarely found in the blood of healthy subjects. We aimed to evaluate an increase in lung tissue damage among COPD patients and try to distinguish stable disease from exacerbation.

Methods

We recruited COPD patient with stable disease and with acute exacerbation. Blood samples for cfDNA were taken from all participants. Basic clinical information and simple pulmonary function were evaluated. DNA concentration with a methylation pattern of lung cells.

Results

84 patients were recruited. DNA producing and methylation pattern testing were performed for 39 COPD patients with acute exacerbation and 38 patients with stable disease. Mean age was 69.8, Mean FEV1 among patients with acute exacerbation was 44%. Mean FEV1 among stable patients was 59%. The total concentration of cfDNA in the exacerbation group was 204.7 copies per ml compared to 32.0 copies per ml in the stable group. The average was 12.8 copies per marker compared to 2.2 copies per marker respectively ($P<0.05$). 12 patients with acute exacerbation died within the first 6 months. None of the stable COPD patient died ($P<0.05$). Among the deceased the cfDNA concentration was significantly higher compared to the living. 20 patients from the Exacerbation group underwent further exacerbation the following year, compared with 5 from the stable group ($p <.005$).

Conclusion

We suggest that cfDNA derived from lung tissue might be a biomarker for lung damage, can distinguish between COPD patients with acute exacerbation compared to stable patients and might be a prognostic factor for mortality and further exacerbations.

55 Post-COVID-19 syndrome in health-care workers

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Introduction

The number of reports describing patients who continue to suffer from prolonged symptoms after recovery from COVID-19 is increasing. In Shaare-Zedek medical center (SZMC), in April 2021 there were more than 700 staff members who were diagnosed with COVID-19. The study aimed to investigate the post-COVID-19 syndrome among health care workers (HCWs) in SZMC and factors influencing it and compare this syndrome to symptoms, from which HCWs who were never diagnosed with COVID-19 suffered during the pandemic period (the third wave of COVID-19 in Israel: December 2020-February 2021).

Methods

HCWs who were diagnosed with COVID-19 at least three months prior enrollment (study group), and HCWs who were never diagnosed with this disease (control group) were suggested to participate. The participants of both groups were asked to fill anonymously a questionnaire regarding their symptoms during the disease and following the recovery in the study group or during the pandemic period (December 2020 - February 2021) in the control group.

Results

Five hundred and seven HCWs enrolled in the study – 175 had COVID-19 (study group) and 332 did not have COVID-19 (control group). Most (64%) of staff members who were infected with COVID-19 suffered from at least one symptom for a minimum of one month after first positive PCR. The most frequent symptoms were fatigue (46.3%), exertional dyspnea (27.4%) and loss of concentration (18.9%). A substantial number of HCWs (23%) in the control group suffered from post-COVID-like symptoms without being infected with COVID-19 disease. Although the severity and prevalence of the symptoms were lower in the control group, the mean decrease in wellbeing was close to those who had post-COVID syndrome (-1.55 vs -1.84, p=0.31 , respectively).

Conclusions

More than a half of those who were infected with COVID-19 and almost a quarter of those who didn't suffer from COVID-19 but witnessed the pandemic suffered from prolonged symptoms that resemble post-COVID syndrome. The consequences of COVID-19 are a great burden on medical society, leading to decrease in HCWs health and well-being.

56 Sources of Primary Bloodstream Infections in Internal Medicine Patients – the Role of the Peripheral Line

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Background

Bloodstream infections (BSIs) that are not classified as either secondary to another site of infection or central-line associated (CLABSI), are considered primary non-CLABSI. There is insufficient data regarding the classification of BSIs in internal-medicine patients. Particularly, the causes for primary non-CLABSI and possible preventive measures for it, are not well studied.

Methods

We analyzed all BSIs at the internal-medicine wards of the two campuses of the Hadassah Hebrew-University Medical Center, during 2017-2018. We defined the BSI source of each event (secondary, CLABSI or primary non-CLABSI) and compared BSIs present on admission (POA) to those hospital acquired (HA).

Findings

There were 595 patient-unique BSI events, 316 (53.1%) POA-BSI and 279 (46.9%) HA-BSI. Overall, 309 (51.9%) were secondary, 194 (32.6%) primary non-CLABSI and 92 (15.5%) CLABSI. Primary non-CLABSI in the POA-BSI group was 20.6% vs. 46.2% in the HA-BSI group (p=0.001). The length of hospital stay (LOS) from culture to discharge of the HA-BSI group was longer than in the POA-BSI group (mean LOS, 19 days vs. 13.6 days, p=0.01) and the mortality rate was higher (48.7% vs. 19%, p=0.001). Staphylococcus aureus was more common in primary non-CLABSI than in CLABSI and secondary BSI (29.5%, 12.8% and 16.2%, respectively).

Interpretations

The proportion of primary non-CLABSI among HA-BSI events is very high (46.2%). We suggest that the peripheral venous catheter is a probable source for primary non-CLABSIs. Measures to prevent peripheral line associated BSI (PLABSI), similar to those implemented successfully for the prevention of CLABSI, should be considered.

57 An international survey of adherence to Surviving Sepsis Campaign Guidelines 2016 regarding fluid resuscitation and vasopressors in the initial management of septic shock

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Background: Our survey aimed to evaluate adherence to Surviving Sepsis Campaign (SSC) Guidelines 2016 among intensive care practitioners and to identify issues that remain controversial or lack clarity.

Methods: Members of the European Society of Intensive Care Medicine (ESICM) were surveyed using an anonymous web-based survey written by an international group of experts. The primary outcome measure was the rate of adherence to specific recommendations. Secondary outcomes were to describe areas of controversy and lack of data and to associate specific practices with clinician characteristics.

Results: Overall 820 questionnaires were completed. The SSC recommendations 2016 most adhered to were the choice of norepinephrine as first-line vasoactive drug (96.5%), vasopressor prescription based on therapeutic goal rather than dose (83.4%), targeting a specific mean arterial blood pressure during vasopressor use (77.9%), monitoring of blood pressure invasively (62.8%) and adding vasopressin or epinephrine as a second vasoactive agent (83.4%). We identified an internal conflict with regards to parallel versus sequential administration of fluids and vasoactive drugs and regional differences in practice that may be related to drug availabilities.

Conclusion: The use of vasopressors and fluid use in septic shock is largely compliant with current guidelines but several controversies should be addressed in future guideline iterations

58 The relationship between anemia prior to in-hospital cardiac arrest and survival from cardio-pulmonary resuscitation – a retrospective cohort study

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Introduction: A handful of studies have been conducted on the association between anemia and outcomes after cardiopulmonary resuscitation (CPR), mainly in out-of-hospital cardiac arrest (OHCA) patients. These studies suggested that anemia is associated with poorer outcomes but did not fully control for the presence of comorbidities which may also be associated with anemia

Objectives: To examine the relationship between prearrest hemoglobin levels and survival after CPR of in-hospital cardiac arrest (IHCA) patients before and after adjustment for comorbidities.

Methods: We retrospectively analyzed observational data collected in real time on IHCA patients who underwent CPR due to non-traumatic arrest (excluding pregnant and peripartum women). Patients were divided into anemic (hemoglobin<10 g/dL) and non-anemic (hemoglobin≥10 g/dL) groups. The primary outcome was survival to hospital discharge (SHD) and the secondary outcome was return of spontaneous circulation (ROSC). We adjusted for comorbidities and other factors with multivariate logistic regression analysis. We also performed several sensitivity and subgroup analyses.

Results: Of 1515 CPR reports screened, 773 patients were included in this study. Half of the patients (50.5%, 390) were classified as anemic based on their lowest hemoglobin measurement in the 48 hours preceding the arrest. Overall, 9.1% (70 patients) achieved SHD and 49.5% (383) achieved ROSC. Similar rates of SHD (7.3% vs. 10.7%, P=0.118) and ROSC (49.5% vs. 51.0%, P=0.688) were observed in anemic and non-anemic patients. These findings remained consistent after adjustment for comorbidities and in subgroup analyses.

Conclusions: Prearrest hemoglobin levels lower than 10 g/dL were not associated with lower rates of SHD or ROSC in IHCA patients, before and after controlling for comorbidities. Further work is required to confirm our findings and to establish whether hemoglobin levels reflect the severity of the inflammatory post-resuscitation processes in IHCA patients.

59 Experimental and Compassionate Drug Use During the First Wave of the COVID-19 Pandemic: A Retrospective Single-Center Study

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Introduction
Concomitant experimental/compassionate drug administration has been all-pervasive in the treatment of COVID-19 patients. The objective of this study was to study the relationship between patient severity, the number of experimental/compassionate medications received (main outcome measure), and patient outcomes [survival to hospital discharge and length of hospital stay (LOS)].

Methods
Retrospective analysis of data collected in real time during the first pandemic wave in a tertiary care hospital. Data included patient demographics, comorbidities, admission vital signs, laboratory values, most extreme respiratory intervention during hospitalization, and data regarding treatment with compassionate/experimental drugs during their stay.

Result
Overall, 292 PCR-confirmed patients with symptoms of COVID-19 were studied (March/April, 2020). Increasing respiratory support correlated with both LOS and mortality. Patients were more likely to receive more than 1 experimental/compassionate drugs as respiratory support escalated, ranging from 3% (n = 4/136) among patients on room air to 77.3% (n = 17/22) of mechanically ventilated/ECMO patients (P < 0.001, linear by linear association). The mean number of experimental/compassionate drugs received also increased with escalating respiratory support (P < 0.001, one-way ANOVA). After adjustment for severity of patient condition, administration of more experimental/compassionate drugs was unrelated to survival (P = 0.24), but was related to increased LOS (P < 0.001).

Conclusion
Patients that were hospitalized in worse condition were more likely to receive more experimental/compassionate drugs. Treatment was unrelated to survival but may have been related to LOS. This finding raises questions regarding the results of studies on medication effects that adjusted for multiple drug administration.

60 A Negative Exome is not the End of the Story

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Background
GDS3 is a glycogen accumulation disease that involves damage to the muscles, liver and heart with varying expression. The cause of the disease is biallelic pathogenic mutations in the AGL gene that codes for the Amylo 1,6 glucosidase enzyme. Family 'H' (consanguineous) has 2 children diagnosed with GSD3, but no mutation was ever found, even after exome sequencing. One deep intronic homozygous variant was identified as a variant of uncertain significance (VUS).

Methods
RT-PCR, qRT-PCR was used to analyze AGL expression. Long-PCR and NGS was used to confirm the structural variant and identify the exact molecular defect.

Results
Since this was the only variant in the AGL gene, the only gene known to cause GSD3, we examined whether the variant was associated with any changes in AGL gene expression. using several different PCR primer sets, we discovered that part of the gene was not expressed in the affected children, whereas in the parents, all exons of the transcript were expressed.
We next examined to see if this was due to exon skipping or a deletion of this area in the DNA. We sequenced the specific cDNA of these exons and we discovered that there were three missing exons. Sequencing this region on the DNA is very difficult since the distance covering these missing exons was 12 Kb, too long for conventional sanger sequencing. Combining long-range PCR, and NGS enabled us to sequence the entire segment and find the exon deletion with clear boundaries. This deletion of these exons resulted in a frameshift, loss of function mutation.

Conclusions
We identified a pathogenic mutation in an exome negative case, by combining expression analysis with next generation DNA sequencing. This finding will now allow prenatal or preimplantation diagnosis and let this couple plan a family with healthy offspring. While we often rely on next generation clinical exome sequencing, this study points out that in exome negative cases, when there is only a single suspected disease gene, it pays to invest additional means, such as transcript analysis, to look deeper for the genetic basis of the disease.

61 The landscape of autosomal-recessive pathogenic variants in European populations reveals phenotype-specific effects

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Background
A major public health goal is to detect at-risk couples (ARCs) for various autosomal recessive (AR) disorders. Currently, the number and distribution of recessive alleles in the population are not known at genomic-scale. Current estimates are extrapolations from specific phenotypes and gene-sets.

Methods
We used 4120/2327 exome-sequences of healthy, genetically unrelated Dutch/ Estonian samples, representing two distinct European populations. We analyzed 1929 AR genes and extracted all exonic and flanking intronic variants. We created a robust list of pathogenic/likely-pathogenic variants (PLPs), based on automated analysis which relied, among the rest, on established databases and frequency data. We simulated all possible matings within the Dutch and Estonian samples (8.5M/2.7M theoretical couples, respectively).

Results
We estimate that every individual is a carrier of at least 2 pathogenic variants in currently known AR genes and that 0.8%-1% of European couples are at risk of having a child affected with a severe AR genetic disorder. This risk is 16.5-fold higher for first cousins but is significantly more increased for skeletal disorders and intellectual disabilities due to their distinct genetic architecture.

Conclusions
In two distinct European populations, we find similar estimates for the number of PLPs per person and for the proportion of ARCs for a recessive disease. These results can be used by clinicians for baseline risk calculations and be incorporated in PCS guidelines.

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62 Implementing long read sequencing technologies in prenatal, neonatal, pediatric and cancer genetic diagnosis

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Introduction
Next-generation sequencing (NGS) technologies capable of rapidly analyzing genetic variations transformed the diagnosis of single gene or oligogenic genetic disorders in prenatal, pediatric, and adult medicine. These sequencing technologies are characterized by high accuracy and high capacity to analyze tens to hundreds of samples in a single analysis. However, NGS is based on sequencing of short DNA fragments, resulting in poor capacity to analyze structural variants (SV), chromosomal rearrangements, and repetitive DNA sequences. In recent years long-read sequencing technologies, such as Oxford Nanopore Sequencing (ONT) have shown promising results in solving complex genetic variations.

Aims:
Implementing ONT as a tool for clinical genetic testing in cases demanding solving complex DNA rearrangements or repetitive DNA sequences.

Methods:
First, we performed whole-genome sequencing (WGS) using ONT in several cases of Pre-implantation Genetic Diagnosis (PGD) involving unsolved structural variations and chromosomal rearrangements. Second, we designed a new genetic test for Fabry disease using long-read sequencing of a long amplicon of the GLA gene. Finally, we are designing a protocol to analyze DNA and RNA of the BRCA1/2 genes using ONT in order to detect structural variants, splicing variants, and methylation aberrations.

Results:
For 4 different cases, using our long-read WGS pipeline, we could detect a precise SV and its precise breakpoints. All 4 SVs were further validated by a second molecular methodology. For 3 other cases, long-read data could detect the change in copy number but did not precisely resolve the SV boundaries. Our ONT-based Fabry test detected 100% of GLA variants including intronic and copy number variants.

Conclusions:
Our long-read sequencing-based analyses successfully solved the genetic variations in cases with previous unsolved or partial diagnoses and for some of the cases offer better genetic counseling and solutions for the patients. We believe that further improvements in the technology and expected reduction in costs will allow ONT to be used routinely in medical genetic testing.

Division of Internal Medicine

63 Can gene correction repair aberrant epigenetic modifications in myotonic dystrophy type 1 (DM1) affected cells?

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Background: Myotonic dystrophy type 1 (DM1) is an autosomal dominant muscular dystrophy that results from a CTG repeat expansion (50 – >3,000 triplets) in the 3'-UTR of the DMPK gene. While DM1 is primarily mediated by RNA/protein gain-of-function mechanisms, it also features abnormal DNA hypermethylation and repressive histone modifications at the mutant locus. DMPK hypermethylation provides the strongest indicator for the transmission of the congenital and most severe form of the disease (CDM1). In addition, it is correlated with muscle strength and respiratory-related phenotypes, and may potentially alter local gene transcription. Whether hypermethylation can be reversed once the gene has been corrected remains unclear.

Aim: The aim of this study was to examine whether excision of a large CTG expansion from the DMPK gene would abolish abnormal epigenetic modifications, and if so, whether it depends on the differentiation state of the cell.

Methods: Using DNA bisulfite sequencing (for DNA methylation) and ChIP experiments (for histone modifications) following repeat deletion by CRIPR/Cas9 gene editing, we monitored for a change in aberrant epigenetic modifications at the DM1 related locus in undifferentiated mutant human embryonic stem cells (hESCs, CTG2000), affected myoblasts (CTG26000), and their in vivo differentiated (teratoma) and undifferentiated (myoblast-derived iPSCs) cell counterparts.

Results: We show that the excision of CTGs in undifferentiated mutant hESCs epigenetically resets the locus by abolishing repressive modifications such as DNA methylation and histone H3K9me3 enrichment. This contrasts sharply with repeat deletion in affected myoblasts, where the levels of DNA methylation and histone H3K9me3 enrichments remain unchanged. In addition, we provide evidence for a switch from reversible to an irreversible methylation state by in vivo differentiation of hESCs (teratomas), which can be set back in induced pluripotent stem cells (iPSCs) by reprogramming of DM1-affected gene-edited myoblasts.

Conclusions: Our findings suggest that the repair of the mutation in cells of patients by gene editing may not be sufficient to therapeutically address the epigenetic aspects of DM1. This may apply to a long list of disease-causing mutations that coincide with aberrant epigenetic modifications.

64 Comparison of long-term antibody response to mRNA SARS-CoV-2 vaccine among peritoneal dialysis and hemodialysis patients.

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Introduction: Coronavirus disease 2019 (COVID-19) is associated with higher morbidity and mortality in patients on maintenance hemodialysis (HD). Vaccination against severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is the main priority to prevent COVID-19. However, humoral response among peritoneal dialysis (PD) patients has been evaluated in small groups only. The late antibody levels have not been reported among this population. This study aimed to assess antibodies levels 6 months following a two-dose regimen of the BNT162b2 mRNA vaccine in PD compared to HD population.

Methods: This multicenter study included two groups of participants, prevalence peritoneal dialysis patients from 4 different PD units across Israel and prevalence hemodialysis from two dialysis centers. All patients had been vaccinated by two doses of Pfizer BNT162b2 vaccine. Antibody levels were measured 6 months ± 3 weeks following the second dose of vaccine.

Results: The study included 64 PD patients from four different centers and 126 HD patients from two dialysis centers who their serology was tested simultaneously and were used as the control group. Six months after receiving two doses of the vaccine 52 (81.3%) of the PD participates and 99 (78.6%) of the HD participants had antibody titer above 50 AU/ml which is considered protective (p=0.666). Mean antibodies levels was not different between the two groups, 445±660 AU/ml (median 141, interquartile range 0-1831) among HD participants and 384±577 AU/ml (median 258, interquartile range 16-982) among PD participants (p=0.535). Antibody titer correlated with age in both groups (Pearson correlation -0.343, p=0.0001 and -0.344, 0.005, respectively) but did not correlate with any other clinical parameter

Conclusion: Hemodialysis and peritoneal dialysis patients maintained significant humoral response six months after 2-dose regimen of vaccine. The serology response was age dependent. No difference between the two dialysis modalities has been documented.

65 Incidence, risk factors, and recognition of pseudohyperkalemia in patients with chronic lymphocytic leukemia

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Introduction

Pseudohyperkalemia is a false elevation of potassium level in vitro due to release of potassium from cells during or after blood sample collection. Pseudohyperkalemia can be observed in chronic lymphocytic leukemia (CLL) patients due to fragility of leukocytes along with a high leukocyte count. This study aimed to assess the incidence and risk factors of pseudohyperkalemia episodes in CLL patients.

Methods

This retrospective, observational study included all patients diagnosed with CLL at Shaare Zedek Medical Center who had at least one leukocyte count ≥50.0× 109 /L during the years 2008-2018. All hyperkalemic episodes (including when leukocyte count was below 50.0 × 109 /L) during this period were assessed. Pseudohyperkalemia was defined as when a normal potassium level was measured in a repeated blood test or when known risk factors and ECG changes typical of hyperkalemia were absent.

Results:

Of the 119 episodes of hyperkalemia observed, 41.2% were considered as pseudohyperkalemia. Pseudohyperkalemia episodes were characterized by significantly higher leukocyte counts as well as higher potassium and LDH levels compared to true hyperkalemia. Pseudohyperkalemia was documented in medical charts only in a minority of cases (n=4, 8.1%). Treatment was administered in 17 of 49 (34.7%) cases and caused significant hypokalemia in 6 of those cases.

Conclusion

The incidence of pseudohyperkalemia in this study was rather high, suggesting that physicians should be more aware of this phenomenon in patients with CLL. Pseudohyperkalemia should be suspected particularly in patients with no risk factors for hyperkalemia, high leukocyte counts and high potassium level.

66 Acute kidney injury associated with chemical hair straightening: a case series

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Introduction

Permanent chemical hair straightening (CHS) is a widely used technique for hair straightening. Hair straightening products usually contains glyoxylic acid which is approved for cosmetics and is metabolized to glyoxalate and later to oxalate. Two recent reports of severe acute kidney injury (AKI) due to acute tubular necrosis and renal calcifications requiring dialysis following CHS have been reported. In addition, hair straightening products can contain formaldehyde despite being labeled "formaldehyde-free". Formaldehyde is toxic and if inhaled can cause damage to the tissues of the upper respiratory tract, allergic reactions, and has carcinogenic and teratogenic potential. Absorption of inhaled or applied formaldehyde could potentially cause renal tubular toxicity.

Methods

This is a retrospective report of patients with severe AKI following CHS seen in SZMC in years 2019-2021.

Results

Four young (ages 22-30) healthy female patients were identified. Abdominal pain and vomiting were the first clinical symptoms started within a couple of hours or during the procedure. Severe AKI (creatinine range 2.7-6 mg/dl) was detected 2-4 days after CHS. All patients had normal blood pressure and physical examination, bland urinary sediment, no proteinuria and otherwise normal blood tests including blood gases. No other significant environmental exposure, use of medication, illicit drugs or any other toxic material was recognized. Abdominal US showed severely hyperechoic kidneys with decreased corticomedullary differentiation (Fig 1a). Kidney functions started to improve within 1-2 days and kidney biopsy was not performed. None of the patients required RRT. Within a couple of weeks creatinine and renal imaging has normalized

Conclusion

We demonstrated a series of severe AKI in young healthy females after exposure to 'formaldehyde-free' hair straightening products. Although formaldehyde and glyoxylic acid are suspected, the identity of the chemical culprit is still pending and is under investigation. Since CHS is widely used, these cases can be the "tip of the iceberg" of milder cases of AKI which are not diagnosed.

67 Ultrasound-guided botulinum injections for cervical dystonia

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Background

With the introduction of ultrasound (US) as a guide for botulinum injections in patients with cervical dystonia (CD), deeper muscles became available for injections, which should improve treatment outcome.

To date, the knowledge about the efficacy and side effects (SE) profile of US-guided botulinum injection for CD is scarce. We aimed to study the efficacy, SE profile and impact of US-guided injections on the quality of life of patients with CD.

Methods

Demographic and clinical data were collected from consecutive patients attending the botulinum clinic at Shaare Zedek Medical Center, included the subjective treatment efficacy (STE) in a 0-100 scale, the total dose injected.

Additionally, few scales were given, including Clinical Global Impression of severity (CGI-S) and of change (CGI-C), Patient Global Impression of severity (PGI-S) and of change (PGI-C), Tsui rating scale for CD.

Results

15 patients were enrolled (8 females), mean age at first injection was 58.6± 23.4. There were 47 visits, 2.3 visits per patient. Torticollis was the most common abnormal neck posture (n=7), followed by laterocollis (n=4) anterocollis (n=3) and retrocollis (n=1). At first visit, the median CGI-S was 4 (IQR 2) and 74% of the patients were graded 3-5 on the CGI-S. Mean Tsui score was 7.5±4.5.

All patients were treated with Dysport. The mean dose was 494.1±150.9 units. Mean STE was 60.8±35.3 for motor control and 77.3±38.8 for pain. Using CGI-C, 90.5% of patients improved in total, of whom 65.6% had moderate to marked improvement. Dysphagia was the most common SE (17.6%), followed by pain at injected site (14.7%) and neck weakness (8.8%).

Conclusion

US-guided injection of botulinum in patients with CD appears to be effective and well tolerated. Regarding safety, dysphagia was the most common SE (17.6%) and was mild in all cases.

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68 Therapeutic approach to botulinum injections for hemifacial spasm, synkinesis and blepharospasm

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Background

The efficacy and side effects profile of botulinum toxin (BT) injections for hemifacial spasm (HFS), post Bell's palsy synkinesis (PBPS) and blepharospasm (BS) are dependent on the experience and technique of the treating physician. We aimed to find the best therapeutic approach to botulinum toxin (BT) injection to the facial muscles.

Methods

Data was retrieved from 75 visits between 2019-2021. The decision to treat the lower eyelid with 1-point or 2-points injection was randomly taken as there is no consensus regarding this debate. Injections to the lateral end of the upper eyelid were performed more laterally to the conventional injection point, just lateral to the conjunction of the upper and lower eyelids.

Results

23 patients (19 females, 11 Hemifacial spasm, 8 blepharospam, 4 post Bell's palsy synkinesis) were enrolled. Mean age of onset was 48.6±16.2 years. The most frequent score of the patient global impression of change was "marked improvement" scoring 30 times (54.5%), followed by moderate and mild improvement (32.7% and 9.1%, respectively). Overall, 87.2% of the treatments had moderate or marked improvement. The most common side effect was eye-opening/smile limitation (11.5%), followed by local hematoma and a dry eye (8.2% for each). Neither ptosis nor diplopia was noted. Two-points regimen in the lower lid was associated with a lower risk of drying eye (p=0.043), hematoma (p=0.043) and eye/smile limitation secondary to weakness (p=0.028) compared to 1-point regimen, without a compromise of the therapeutic effect.

Conclusions

Two-points injection of the lower eyelid is preferable over 1-point injection. Injection of the pretarsal segment of the upper eyelid, just onto or even lateral to the conjunction of the upper and lower eyelids, lowers the risk of ptosis.

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69 Botulinum injections for anterocollis are not effective: a case series

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Background
Botulinum toxin (BT) injections into the cervical muscles are effective for cervical dystonia (CD). Anterocollis is poorly responsive to BT. The practice to treat anterocollis is to inject the scalenes and the levator scapulae muscles, and if necessary the longus collis which is hardly accessible.

Methods
We collected the patients with anterocollis as primary neck postural abnormality and compared them with patients whose primary neck abnormality is torticaput. Demographic and clinical data was collected and included gender, age, ago at onset (AAO), comorbidity, injections data such as the muscles injected and the dose. Routine forms during each visit were filled: Patient Global Impression of change (PGI-C), Clinician Global Impression of severity (CGI-S), TSUI scale. The effect duration and side effects (SE) of the previous treatment were noted.

Results
We described 4 patients (3 males, 13 visits) with anterocollis and compared with 7 patients (1 male, 41 visits) with torticaput. Mean AAO of anterocollis was 75.3±7.0 years, age at first injection was 80.7±3.5 years. The mean total dose per treatment was significantly lower than for the torticaput patients (290.0±95.6 vs. 592.7±172.0 units, p<0.001). PGI-C with any grade of favorable effect was reported in 50% of the treatments of the anterocollis group as compared to 96.9% in the torticaput group. Marked improvement was reported in 2 visits (20%) of the anterocollis group, compared to 50% of the visits of the torticaput group. The CGI-S score did not show a consistent tendency to improvement and also objective assessment by the Tsui scale showed no improvement. Neck weakness was prevalent in 20% of the visits of anterocollis group while dysphagia and local pain were not noted by any patient with anterocollis.

Conclusion
This case series describes the poor outcome of BT treatment for anterocollis, with low effectivity and bothersome SE. Head drop occurred in two cases as a SE and in one of which, the head drop was severe and long-lasting, secondary to weakening of the levator scapulae. It seems that a levator scapulae injection for anterocollis is not effective and is highly associated with head drop and should be abandoned.

70 Developing a method to diagnose Acute Ischemic Stroke based on identifying brain tissue-specific cell death using methylation patterns of circulating cell-free DNA – Preliminary Results

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Background and aim
Stroke is a major cause of disability and mortality worldwide. So far, an attempt to find a biological marker in the peripheral blood for the diagnosis of stroke was unsuccessful. Cell-free DNA released into the bloodstream shortly after the onset of a stroke may be useful in diagnosing, assessing the severity, and the prognosis of the stroke. The aim of this study is a Proof of Concept for a unique biomarker for the diagnosis of acute ischemic stroke.

Patients and methods
A novel method for diagnosing brain cell mortality after the onset of an acute ischemic stroke using a simple blood test which is based on the methylation model of free DNA in the patients' blood, at different stages of the disease is being developed. The patient's blood presenting with an acute ischemic stroke was taken and molecular analysis was performed. Then, the Correlation of the findings to the clinical condition of the subject was undertaken. A comparison with the plasma of healthy people will serve as the control.

Results
It was found that only 2 out of 12 samples showed significantly higher cfDNA concentrations compare to the healthy baseline. These particular signals were correspondent to clinically extensive stroke that presented as a large vessel occlusion (LVO). Furthermore, it was possible to differentiate cell types affected as illustrated in the figure.

Conclusions
Our preliminary results revealed that diagnosing acute ischemic stroke and its severity may be possible using this method probably by improving its sensitivity. More patients are needed to confirm our results, as well as the time profile, the effect of treatment, certain pathophysiological aspects, and testing the ability to differentiate acute stroke from stroke mimics.

71 PFO Closure as a Preventative Measure in Secondary Stroke Prevention – Shaare Zedek Heart & Brain team experience

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Objective
The current guidelines recommend PFO closure for patients with cardio-embolic appearing stroke, with visualized PFO and no other mechanism of stroke identified. However, this are clinical uncertainties regarding patient selection for PFO closure. Our aim was to review our own experience with this group of stroke patients at Shaarei Tzedek Medical Center.

Methods
This is a retrospective chart review of all patients with suspected cardio-embolic stroke of unknown source discussed at out Heart & Brain meeting between 2017 and 2020. These patients all had a suspected cardio-embolic source and a PFO identified by TEE and/or TCD with bubbles. RoPE score was used to identify potential candidates for PFO closure. Clinical follow up was performed by Neurology and/or Cardiology and follow up ECHO was performed for those patients who underwent PFO closure and who had no recurrent cerebral ischemic event.

Results
A total of 75 patients were included in the review with follow up performed between 3months and 2 years. The mean age was 54 with 66% women . 41 of the patients were diagnosed with PFO and of these 26 underwent PFO closure. The PFO closure group included 18 women and 8 men. 77% of patient were below the age of 60. The average RoPE SCORE was 6. 57% of patients who had PFO closure had no other stroke risk identified. None of the PFO closure patients had any post procedural complications. No residual shunting was identified on follow up ECHO.

Conclusion
This retrospective study shows that selection of PFO closure should be based on the current guidelines, however RoPE score should not be a main exclusion for PFO closure.

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72 A lower rate of hyposmia in non-Ashkenazi jewish patients with Parkinson's disease: motor and non-motor disease characteristics in different ethnic groups in Israel

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Background
Little is known about phenotypical variations among the different ethnic groups of patients with Parkinson's disease (PD) in Israel. The clinical charcteristics of Non-Ashkenzi Jews (NAJ) are scantly described. We aim to describe clinical aspects of PD in different ethnic groups in Israel, focusing on NAJ ethnic groups vs. Ashkenazi-Jews (AJ).

Methods
Demographic and clinical characteristics of PD were extracted from consecutive patients' files. Apart from AJ, other groups were classified as North-African Jews, oriental jews originating from Iran/Iraq/Buchara, Balkan and Yemenite Jews, and Jews from mixed origin. We did two analyses. The first divided the ethnic groups into AJ and NAJ. Then we subdivided the NAJ into different subgroups. The presence of hyposmia, urinary complaints, constipation, and REM-sleep behavioral disorder (RBD) were noted dichotomously. Cognitive complaints were scored according to question 1.1 in the MDS-UPDRS-part-I. Motor features were collected: tremor predominance at onset, complaints of freezing of gate, Levodopa induced dyskinesia and motor fluctuations. Motor part of the MDS-UPDRS and Hoehn&Yahr score were collected.

Results
127 PD Jewish patients (62.2% AJ, 57.0% males) were enrolled. The AAO was 65.9±10.3 years. the difference among the various groups was not statistically significant. 72 patients (56.7%) were genotyped [12 GBA patients (16.7%), 9 LRRK2 patients (12.5%). The rate of hyposmia was significantly higher in AJ compared to NAJ (57.9% vs. 26.7% respectively, p-value<0.001). This difference was also significant following logistic regression analysis with adjustment to disease duration (p=0.002). Out of 9 patients carrying the LRRK2 mutation only one had hyposmia. There were no significant differences in the other non-motor features. As for motor features, there were no significant differences either between AJ and NAJ or among the subgroups of the NAJ group in all variables.

Discussion
Hyposmia is less prevalent in PD patients of NAJ origin than in AJ. The rate of hyposmia in patients of North African origin seems to be particularly low. The rate of other non-motor features is similar between NAJ and AJ patients. Other firm statements on non-motor features in the different ethnic population were absent, perhaps due to the relatively small sample of the study.

73 Is There an Association Between Hormone Replacement Therapy Use and the Prevalence /Severity of Migraine Without Aura in Post-Menopausal Women?

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Introduction

Migraine is a common neurologic disease, characterized by recurrent attacks of headache associated with nausea, vomiting, and sensitivity to various sensory stimuli. Migraine severity in women is related to changes in sex hormone levels. After menopause, many women with migraine experience symptomatic improvement. There is little data on the effect of hormone replacement therapy (HRT) on migraine in these women.

In this study, we examined the association between HRT use and migraine prevalence and severity in post-menopausal women.

Methods

We recruited post-menopausal women with a history of migraine without aura from the neurology and gynecology clinics at Shaare Zedek Medical Center. For each subject, we obtained information, using a questionnaire, regarding migraine characteristics and HRT use, including type and duration of treatment. We compared migraine prevalence and severity between women who used HRT and those who did not.

Results

We recruited 62 subjects, 14 of whom used HRT and 48 did not. Migraine attack frequency was significantly higher in women who did not use HRT compared with those who did (8.65 vs. 4.24 attacks/month, p=0.01). Frequency of analgesic use was also higher in women who used HRT c/w those who did not (8.98 vs. 5.04 days/month, p=0.06). Attack duration, pain intensity, and migraine-associated disability were not significantly different between the two groups.

Conclusions

HRT use was associated with decreased migraine attack frequency and analgesic use in our group of post-menopausal women with a history of migraine without aura.

We are continuing to recruit subjects to the study to further assess the association between HRT use and migraine in post-menopausal women.

74 Osimertinib in advanced EGFR-mutant Lung Adenocarcinoma with asymptomatic brain metastases: an open-label, three-arm, phase II pilot study

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N.P and W.K contributed equally to this manuscript.

Background: Osimertinib is selective for both EGFR-TKI sensitizing and Thr790Met mutations. While intracranial activity of osimertinib is documented in larger trials, a prospective study focusing exclusively on patients with asymptomatic brain metastases has not been reported.

Methods: In this nonrandomized, phase II, open label, 3-arm prospective proof-of-concept pilot study, 48 patients with metastatic EGFR-mutant lung adenocarcinoma (LUAD) received osimertinib 80 mg daily. Patients were either treatment naïve (arm A=20) or previously treated with an EGFR-TKI and Thr790Met-positive (arm B=18) or negative (arm C=10). In cases of isolated intracranial progression, osimertinib dose was escalated (160 mg). The primary endpoints were intracranial objective response rate (iORR) and intracranial disease control rate (iDCR). The secondary endpoint was intracranial progression free survival (iPFS). This study is registered at Clinicaltrials.gov, NCT02736513.

Results: The iORR's were 84.2%, 66.7% and 50% and the iDCR's were 94.7%, 94.4% and 80% in arms A, B and C, respectively. The median iPFS was 11.8 months (95% CI 7.7-NA), 7.6 (95% CI 5.3-NA) and 6.3 months (95% CI 3.9-NA) in arms A, B and C, respectively. Following dose escalation, pooled iORR was 54% (arm A=5, arm B=4, arm C=2). Adverse events were similar to those in previously published literature.

Conclusion: Osimertinib demonstrated high efficacy on brain metastases. All trial arms displayed a significant decrease in the number and diameter of target lesions. These findings indicate that osimertinib is effective for Thr790Met-positive and negative LUAD patients with asymptomatic brain metastases. Therefore, osimertinib should be considered a viable option for EGFR-mutant patients with brain involvement regardless of their Thr790Met mutation status.

75 Liquid Biopsy First is Very Solid in Naïve Non-small Cell Lung Cancer Patients: Faster Turnaround Time with High Concordance to Solid NGS

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Purpose
Molecular profiling is crucial in naïve non-small-cell lung cancer (NSCLC). While tissue-based analysis is challenged by turnaround time and scarcity of tissue there is increasing demand for liquid biopsy. In this retrospective study we aim to analyze the use of upfront liquid-biopsy as a molecular profiling approach.

Methods
This retrospective multicenter, non-interventional study compared findings and turnaround times of liquid vs. standard-of-care (SOC) tissue-biopsy molecular profiling. The study included 42 naïve advanced NSCLC patients with available liquid-biopsy (Guardant360 CDx) between September 2017 and December 2020.

Results
The analysis included 42 patients (60% males; median age, 69.5 [39-87] years; 86% stage IV NSCLC). Liquid-biopsy analysis provided results for all 42 patients, whereas the tissue-based analysis failed in 5 (12%) patients due to insufficient tumor sample. In 17 patients, 18 actionable driver mutations were identified (2 actionable mutations were identified in the same patient). Eleven mutations were detected by both approaches (i.e., concordance of 61%), 4 only by liquid-biopsy, and 3 only by tissue-biopsy. The median (range) time from the molecular request to receiving the molecular solid report on the last biomarker was 21 (5-66) days; whereas, the median time from blood draw to the liquid-biopsy results was 10.5 (7-19) days. The median time between the availability of liquid-biopsy findings and that of the last biomarker was 5 days. Treatment changes following the liquid-biopsy results were observed in 3 (7%) patients.

Conclusion
Performing liquid-biopsy upfront appears to be a promising NSCLC management approach, especially when tumor tissue is scarce.

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76 Next Generation Sequencing Liquid Biopsy Guided Osimertinib Rechallenge in EGFR Mutated Advanced Non-Small Cell Lung Cancer Patients

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Background and Objectives:
Osimertinib is considered the treatment of choice for patients with epidermal growth factor receptor (EGFR) mutated advanced non-small cell lung cancer (NSCLC) who progressed on EGFR tyrosine kinase inhibitors (TKIs). It has recently been shown to have superior efficacy over 1st/2nd generation TKIs as 1st line treatment for advanced NSCLC. However, eventual development of resistance to osimertinib is ineluctable, amplifying the need for new treatment options in these cases. Rechallenge with early generation TKIs has been described as an optional treatment method after development of resistance. Nonetheless, osimertinib rechallenge has not yet been widely investigated. Herein, we describe a fascinating case series of six patients who, after acquiring resistance to their initial osimertinib treatment, were rechallenged with osimertinib following intervening carboplatin-based chemotherapy.

Methods
All patients had advanced non-small cell lung cancer with a sensitizing EGFR mutation (EGFRm NSCLC). After acquiring resistance to first or second line osimertinib treatment, patients were rechallenged with osimertinib 80 mg following a period of carboplatin-based chemotherapy , To track tumor evolution and guide treatment decisions, all patients underwent serial NGS-based liquid biopsy testing throughout their disease course.

Results
Six EGFRm NSCLC patients were rechallenged with osimertinib following chemotherapy treatment. Osimertinib was given either as a single agent or as part of combination therapy. Median duration of treatment (DOT) was 5.0 [95% CI = 2.0 - 7.0] months and the median OS was 45.0 [95% CI = 34.9 - 55.1] months. Treatment was generally feasible without serious adverse events.

Conclusions
Osimertinib rechallenge as either a single agent or as part of a combination therapy may be an effective and well tolerated approach with the potential to improve survival by a few months.

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77 Induction Osimertinib EGFR-mutant stage III NSCLC

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Background
Definitive CRT followed by durvalumab is the SoC in Stage III NSCLC. This study aims at testing the efficacy of osimertinib as induction therapy before definitive RT in EGFRm stage III.

Methods
This phase II open-label study enrolled EGFRm NSCLC stage IIIA-C. Osimertinib for 12 weeks, followed by definitive RT +/- surgery. Response assessed at weeks 3, 6, and 12. Responders were referred to subsequent definitive RT at week 12, while in case of progression, were referred to CRT. ORR is the primary endpoint, secondary endpoints are mPFS, GTV, and PTV before and after treatment.

Results
This preliminary analysis includes 13 patients with a median follow-up of 14.4m. Participants had either stage IIIA (5), IIIB (5), or IIIC (3) disease. Among the 13 who completed 12 weeks of osimertinib, ORR was 92.3%, (5 CR, 7 PR and 1 PD). Following osimertinib induction, 8 completed RT, 3 did not undergo RT (1 not fit, 1 refused and 1 withdrew), 2 underwent surgery with pT1aN0. One patient is currently undergoing RT. Pre-osimertinib GTV, PTV & V20% were 48.91 cm3 (13.5 - 143.0), 322.96 cm3 (102 - 929.2) and 38.15% (12.8- 60.3) respectively. Post-osimertinib, all variables reduced to 33.5 cm3 (2.99 - 137.7; 31.5% reduction), 202.28 cm3 (83.4 - 718.1; 37.3% reduction) and 30.73% (18.05 - 44.15; 19.6% reduction), respectively.

Conclusions
Osimertinib induction in stage III EGFRm NSCLC is feasible and led to tumor shrinkage in 92% of the cases. This chemotherapy-free novel approach should be further investigated as an alternative to CRT in the setting of EGFR-mutations

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78 Persistent Symptoms Three Months After Clinical Recovery from COVID-19: Relationship to Symptoms Experienced During Acute Illness, Cardiopulmonary function, Lung imaging, and Self-reported Health Status.

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Background: "Long COVID/post-acute COVID-19" is characterized by the persistence of symptoms beyond clinical recovery. Although the incidence and extent of symptoms after recovery are very well described in the literature, there is little information on the evolution of symptoms between the acute to the recovery phase of the disease. We investigated the prevalence of symptoms after recovery and their relationship to symptoms experienced during the acute illness, cardiopulmonary function, lung imaging, and self-reported health status.

Study Design: Prospective, uncontrolled cohort study of COVID-19 survivors, seen in our post-COVID-19 clinic 3 months after discharge.

Methods: Symptoms were assessed using a standard questionnaire and self-reported health status using the 36-item Short-Form Health Survey (SF-36 HRQoL). After the clinical examination, patients underwent pulmonary function tests, a 6-minute walk test, echocardiography, and chest radiography or computed tomography.

Results: Among 203 eligible patients, 166 were evaluated (mean age: 52.1 [SD: 16.8] years; 83 men; 83 women) between June and November 2020. Acute disease severity (NIH scale) was mild in 51 (30.7%) patients; moderate in 37 (22.3%); severe in 67 (40.4%) and critical in 11(6.6%). After three months, the number of symptoms had decreased from 2.3 (SD 0.09) to 1.9 (SD 0.08) (p=0.000). However, this decrease was not unidirectional as the prevalence decreased for cough (64 to 24%), shortness of breath (51 to 30.7%), ageusia (21.7 to 6%), anosmia (17.5 to 5.4%), and generalized pain (10.8 to 5. 4%); remained constant or increased non-significantly for weakness (47-54.8%) and chest pain (15-17.5%); %), and increased significantly for exertional dyspnea (3.6-35.5%) and brain fog (3-8.4%). No single factor could explain the pattern of progression of symptoms. The SF-36 questionnaire was significantly correlated with the number of symptoms at 3 months (highest r=0.43). No single factor could explain the pattern of progression of exertional dyspnea, brain fog, and weakness at 3 months.

Conclusion: Three months after recovery from acute COVID-19, a cohort of survivors reported persistence of symptoms experienced during acute illness. Of the symptoms, most had decreased in prevalence, but others remained constant, such as weakness, or increased, such as exertional dyspnea and brain fog. This finding is consistent with the mental health burden of illness, but further studies are needed to confirm this hypothesis.

Division of Internal Medicine

79 The safety of High flow nasal cannula oxygen therapy for COVID-19

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Introduction: COVID-19 can cause respiratory failure and be fatal. High-flow nasal cannula (HFNC) oxygenation is a method of supplying heated humidified oxygen at flow rate up to 60 L/min that could avert the need for intubation with its high associated mortality (up to 80%).
This study assessed the safety of HFNC in COVID associated hypoxemic respiratory failure and identified potential predictive parameters of poor outcome (intubation or death).

Methods: This retrospective observational study included the first 100 COVID-19 patients treated with HFNC in SZMC. Palliative care (DNI/DNR) patients were excluded. Demographic data, clinical variables, blood tests and chest X-ray analyses were collected. Predictors of failure were analyzed by direct comparison and logistic regression. Failure of therapy was defined as intubation or death.

Results: Out of 100 patients, 13 were excluded (DNI/DNR patients). Of the remaining 87 patients, 64 (74%) were male, mean age was 63+15 years, 32 (37%) required intubation and 15 (17.2%) died. Intubation was associated with increased age (69+14 vs 60+15, p=0.005), hypertension (22/32[69%] vs 24/55[44%], p=0.024), malignancy (4/32[12%] vs 0/55[0%], p=0.016), atrial fibrillation (3/32[9%] vs 0/55[0%], p=0.047), asthma (3/32[9%] vs 0/55[0%], p=0.047), pH (7.39+0.07 vs 7.42+0.05, p=0.039), CRP (21+10 vs 16+9, p=0.018), positive troponin (24/32[89%] vs 21/55[49%], p=0.001) and D-dimer after 72H (11,584+25,408 vs 2305+3448, p=0.022). On logistic regression positive troponin (OR 6.46, 95%CI:1.59-26.29, p=0.009) was an independent predictor of intubation.
Mortality was associated with increased age (77+11 vs 60+14, p<0.001), chronic renal failure (4/15[27%] vs 4/72[6%], p=0.027), malignancy (4/15[27%] vs 0/72[0%], p=0.001), antiplatelet therapy (7/15[47%] vs 14/72[20%], p=0.044), antihypertensive therapy (5/15[33%] vs 8/72[11%], p=0.046) and positive troponin (12/15[92%] vs 33/72[58%], p=0.024). On logistic regression age (OR 1.09, 95%CI:1.02-1.18, p=0.013) and antiplatelet therapy (OR 7.87, 95%CI:1.55-39.89, p=0.013) were independent predictors of mortality.

Conclusions: Treatment with HFNC for critical COVID-19 was relatively safe with a low mortality 17.2% compared to historical cohorts (up to 80%). Many variables were associated with intubation/mortality although most were insignificant on logistic regression meaning that clinically it is difficult to predict who is at risk for failure of HFNC therapy.

80 Elderly onset Still's disease

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Introduction
Adult-onset still's disease (AOSD) is a systemic inflammatory disorder of unknown etiology, typically characterized by spiking fever, arthritis, evanescent rash and hyperferritinemia. It usually affects young people with a bimodal peak at ages 15–25 and 36–46 years.

Aim
Characteristics of AOSD in patients above age of 60.

Methods
In this review we presented a 70-year-old female patient that presented to our institution with mainly fever and rash among other symptoms and was diagnosed to have AOSD according to Yamaguchi criteria, then we reviewed the literature (PubMed) for cases of AOSD among patient above 60 years old.

Results
A total of 47 cases, the mean age was 72 years (range 60-88) with female predominance of 37/48 (77.1%), Clinically all had elevated temperature. 45/48 (93.8%) patients suffered from musculoskeletal symptoms, of whom 27/43 (62.8%) had polyarthralgia, and 16/43 (37.2%) had polyarthritis. 31/48 (64.6%) of the patients had the typical evanescent salmon-pink rash. Sore throat was present in 27/48 (56.3%), where 21/48 (43.8%) and 18/48 (37.5%) had lymphadenopathy and splenomegaly respectively. The mean white blood cells among the reported cases were 16K (range from normal to 37K) in serum. 34/38 (89.5%) reported cases showed impaired either or both of AST/ALT. with maximum levels were 776 U/L for ALT and 852 U/L for AST. Mean ESR and CRP were 76.7 mm/hour and 17mg/dl respectively. Ferritin was typically high, 12/43 had between 3000 and 8000 ng/ml, and 20/43 cases had ferritin more than 8000 ng/ml.

Conclusions
Even though elderly onset still's disease is rare, it seems that it is underdiagnosed, may be due to the complexity of the elderly patients and less awareness of such diseases for physicians. Due to heterogeneity and rarity of the disease, a multicenter collaboration is needed for further understanding this disease.

81 Detection of Mono-Sodium Urate (MSU) in the Coronary tree and Heart using Dual-Energy Computed Tomography (DECT)

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Background
Dual-Energy Computed Tomography (DECT) is a new technology that has been used to detect clinical as well as subclinical MSU deposits in the joints of patients with gout. Whether the use of DECT can detect and quantify the precipitation of MSU within the coronary tree is uncertain.

Methods
Admitted patients to the Shaare Zedek Medical Center underwent Chest CT were recruited to participate in the study. All patients after providing inform consent, underwent DECT scans directed to the heart and coronaries before the assigned CT. Images then were analyzed using specific segmentation algorithm to differentiate calcium and urate depositions within the coronary tree and heart tissue using DE post-processing application - Syngo Via / Siemens. Positive CTs were those with green coded areas in the coronary tree, heart tissue or the aorta were present.

Results
The study included 39 patients, 13 (33.3%) had findings consistent with MSU in the coronary tree or heart (positive CT) and 26 (66.7%) no such findings (negative CT). Patients with a positive CT test had more chronic kidney disease (CKD) (38.5% vs 7.7%, P<0.05), hyperuricemia (69.2% vs 30.8%, P=0.09) and HTN (76.9% vs 42.3%, P=0.051). However, the differences in hyperuricemia and HTN rate were not statistically significant but showed a trend towards significance.

Discussion
Our study has illustrated that patients with evidence of coronary UA deposition by DECT are older (80.7 v/s 68.8, p<0.05) and have more history of chronic kidney disease (38.4 v/s 7.7, p<0.05) than those with negative tests. Patients with hyperuricemia did not show significant difference between both groups, however it showed trend towards significance (p=0.09). Larger study is needed to show statistically significance; however, this small study is a proof of concept of a method for detecting MSU in the heart and coronary tree. This is important since numerous studies have shown association between mortality, coronary disease, congestive heart failure and other conditions with hyperuricemia. The mechanism of these associations is unknown. The findings in this preliminary study may shed light on this association.

82 Social distancing and bacteraemia in the time of COVID-19

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Background
Social distancing was the predominant strategy used to mitigate the spread of coronavirus disease 2019 (COVID-19) at the start of the COVID-19 pandemic.

Methods
Retrospective review of all positive blood cultures from January to July in the years 2017-2020.

Aims
The object of this research was to study the impact of social distancing on the incidence of bacteraemia. The number of admitted patients with positive blood cultures in April-May 2020 in one tertiary medical centre, at Shaare Zedek Medical Center, was compared to the number during the same period in the previous three years (April-May 2017-2019).

Results
There were fewer cases of Streptococcus bacteraemia as well as coagulase-negative Staphylococcus bacteraemia and other possible contaminated blood cultures, in April-May 2020. Compared to the previous three years, the incidence of Streptococcus pneumoniae bacteraemia among all bacteraemias was lower in April-May 2020 (5%) than in 2017-19 (12.0%, 95% confidence interval 10.3%-14.1%). In general, fewer cases of bacteraemia caused by oropharynx organisms were observed in April-May 2020; only six cases vs 31(95% confidence interval 10-53) during the same period in 2017-19. Only one case of Streptococcus pneumoniae bacteraemia was observed in April-May 2020, and its percentage among all bacteraemias was lower in April-May 2020 (0.4%) than during the same period in 2017-19 (3.3%).

Conclusion
The incidences of streptococcal bacteraemia and bacteraemia of organisms transmitted via respiratory secretions were lower when there were social distancing restrictions. Adopting measures of social distancing may decrease the morbidity from bacteraemia caused by oropharynx and respiratory bacteria.

83 Hyperuricemia and mortality in patients hospitalized for COVID-19

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Background
Hyperuricemia is associated with several risk factors for mortality and severe coronavirus disease 2019 (COVID-19) infections. We have shown an association between hyperuricemia and short as well as long-term mortality among hospitalized patients in internal medicine departments1,2. In contrast, several retrospective studies among the Chinese population have shown that hospitalized patients with severe COVID-19 have low uric acid (UA) levels 3-6.

Aim
The objective of this research was to examine whether hyperuricemia (UA > 7 mg/dl) is a risk factor for mortality and severe disease in COVID-19 patients.

Methods
Retrospective review of the charts of patients hospitalized for COVID-19 with available uric acid levels between March 15 and November 30 , 2020.

Results
Among 1566 patients who were hospitalized during the study period, 222 patients with available UA level were detected. The mean age ± standard deviation (SD) was 56.5 ± 19.5, 56.8% were male and 43.2% female. The mean UA ± SD (mg/dl) among the total cohort was 5.65 mg/dl ± 2.18 mg/dl, and 21.2% of the total study population had hyperuricemia on admission.
Factors independently associated with hyperuricemia were congestive heart failure (odds ratio [OR] = 8.4; 95% confidence interval [CI] 1.8–38.6), smoking (OR = 6.56; 95% CI 1.29–33.45), and morbid obesity (OR 3.65; CI 1.33–9.98); white blood count and blood urea nitrogen on admission were also associated with hyperuricemia on admission. The mortality rate was 14.4%, and mortality was associated with higher UA levels on admission (6.9 mg/dl ± 2.6 mg/dl vs 5.5 mg/dl ± 2 mg/dl in patients who survived, $p < 0.05$). In multivariate analysis, older age (OR = 10.72; 95% CI 1.75–65.54), being male (OR = 14.51; 95% C.I 2.33–90.46), ischemic heart disease (OR = 6.75; 95% CI 1.32–34.53), leukocytosis (OR = 10.82; 95% CI 2.21–52.94), high C-reactive protein (OR = 4.69; 95% CI 1.18–18.53), and functional impairment (OR = 20.19; 95% CI 3.67–111) were found to predict mortality. Patients who needed intensive oxygen support (high-flow nasal cannula or mechanical ventilation) and those who required longer-than-average hospitalization (over 7 days) had more hyperuricemia (intensive oxygen support: 30% vs 18%, $p = 0.07$; long hospitalization 29% vs 16.2%, $p < 0.05$).

Conclusion
Our findings show that high UA levels are associated with adverse outcomes in COVID-19 hospitalized patients.: This is in contrast to previous studies. We suggest evaluating hyperuricemia as a marker that integrates and reflects both poor prognostic baseline characteristics and acute components such as inflammatory state, hypovolemic state, and renal failure.

84 To mask or not to mask during labor? Attitudes of midwives towards the requirement for mothers to wear a mask during childbirth due to the Covid-19 Virus.

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Introduction
The covid-19 virus posed a challenge to midwives. As part of combating the outbreak, all staff, visitors, and patients are required to wear masks in hospitals. However, some medical conditions, make it impossible to wear a mask, and the decision should made using common sense. During labor, midwives were required to decide if the mother could remove the mask while giving birth.

Aim
To examine midwives' attitudes towards the requirement for mothers to wear a mask during childbirth due to covid-19, and to examine how their attitudes differ according to the midwives' sociodemographic and professional background.

Methods
A cross-sectional study that used a KAP questionnaire examined knowledge, attitudes, and practical aspects. The questionnaire was distributed to dedicated WhatsApp groups of midwives. Hypotheses were tested using Spearman correlations, t-tests, quadratic live test, and Mann-Whitney test depending on the variable type.

Results
The study was answered by 149 midwives, with an average seniority of 9 years (range between 1-35, S.T. 7.58). The average age of midwives who reported being careful to protect each mother by wearing a mask was higher compared to those who were not careful (43 vs. 40 years) ($t(130) = 1.93$, $p = 0.05$). Midwives who had not been infected with Corona indicated that more care should be taken to protect every mother by wearing a mask, compared to those who were previously infected with Corona ($\chi 2(1) = 3.89$, $p = 0.04$). The study also shows that 56% of midwives rated their degree of consent to care for a mother who refuses to wear a mask at birth to a very large extent. Most midwives expressed empathy and understanding for the mother's condition and during the labor and delivery allowed the mother to remove the mask partially or completely.

Conclusions
During Corona midwives were faced with a dilemma - should mothers wear a mask during childbirth? Similar to the literature on midwives' experiences during other pandemics - In Covid-19, the midwives demonstrated creativity and dedication even at the risk of their personal safety.

85 Gastroenterologists' Attitude Regarding Medical Cannabis for Inflammatory Bowel Diseases in Israel

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Background

The use of medical cannabis (MC) for inflammatory bowel diseases (IBDs) is expanding. Current evidence does not support the efficacy of MC for reducing inflammation in IBD patients. Even so, many gastroenterologists encounter the issue of recommending use of MC to IBD patients.

Methods

A Web-based survey was completed by 84 (34%) gastroenterologists in Israel.

Results

Out of 84 physicians who completed the questionnaire, 59 (70%) were males, 34 (40%) were under age 50 years, 71 (85%) were adult gastroenterologists, and 53 (63%) work mainly in a hospital. Of them, 15, 41, and 44% of physicians think that MC is very effective, mildly effective, and not effective at all, respectively. Physicians will commonly, rarely, and never recommend MC in 31, 47, and 22%, respectively. Older physicians (above age 50 years) were significantly more likely to have a positive attitude towards MC in both questions. When presented with a clinical scenario of a patient in deep remission, requesting to increase the dose, 32% would increase, 49% would maintain, and only 18% would stop prescribing MC altogether; 48% of physicians did not know the recommended initial dose for MC. Only 2 (2.5%) physicians initiated the use of MC to all patients. Female gastroenterologists were significantly more likely to initiate MC, p = 0.048.

Conclusion

The use of MC for IBD patients is commonly encountered. Completely different attitudes regarding this treatment were seen. Age above 50 years and female physicians generally had a more positive attitude towards the use of MC. Guidelines and clear recommendations are needed.

86 Nurses fighting at the frontline during COVID-19

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Background

During the COVID-19 pandemic, Shaarei Zedek Medical Center opened several dedicated wards for COVID-19 patients. The nursing staff at SZMC – as in other medical centers worldwide -- was forced to the forefront of caring for these patients. In this study, nursing staff described the specific challenges they faced working in these wards. They had left their original departments — ICU, neurosurgery, cardio-thoracic, pediatrics, and IVF wards — to voluntarily work at the front line of the COVID-19 battlefield. Working in these wards has led to many physical, social, and mental hardships, as evidenced by studies from around the world.

Objectives

Hear the voices of the nursing staff who worked in the COVID-19 wards, revealing their frontline perspectives.

Method

To gain a deeper understanding of the challenges the nursing staff faced at the frontline, a qualitative approach was selected. In-depth interviews were conducted via Zoom video sessions with 29 nurses during the first COVID-19 wave (March-June 2020). The sessions were transcribed verbatim, and a systematic qualitative analysis was performed on the transcripts.

Results

The main theme that was extracted from the text is: battlefield. The nurses' discourse in describing their work and challenges, consistently used war-related terms and phrases, referring to COVID 19 as "an enemy of which little was known", and the battle as being fought with "limited ammunition." Work environment was described as "a warzone", "chaotic atmosphere", "working with combat uniform." The emotional burden was characterized using terminology such as "stress and ethical dilemmas", "worry over families at home", "PTSD", and "war casualties".

Conclusion

Follow-up research is required to hear nurses' perspectives and challenges in dealing with different waves of COVID-19 and the type of ammunition required to win the battle.

87 From Novice to Expert new nurses survey

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Background
Job satisfaction of nurses in health care settings has been broadly investigated. It is comprised of the emotional condition, feelings of belonging to a workplace, and self-efficacy in task performance. Self-efficacy is comprised of the nurse's education, hospital environment and the nurse's personality. Job satisfaction not only affects quality of care, but reduced job satisfaction is a major cause of quitting the nursing field.
In Shaare Zedek Medical Center there is a structured process to guide nurses through the transition from novice to expert. Each new nurse follows a plan that is comprised of stages and evaluated under a clinical instructor who works on that particular ward.
It is important to examine the process of novice to expert which may be modified from time to time.

Aims
The purposes of this quantitative study are: 1. To identify job satisfaction among new nurses 2. To determine self-efficacy in performing nursing tasks independently among novice nurses working in Shaare Zedek from one to five years. 3. To learn about the process of new nurses' adaptation to working independently.

Methodology
The Minnesota Satisfaction Questionnaire (MSQ) tool that was developed in 1967 measuring 20 components of job satisfaction focusing on the individual's perception of job satisfaction, was translated into Hebrew, and distributed via the RedCap platform to nurses who started to work in Shaare Zedek 1-5 years ago (based on records from the Nursing Administration office). Questions about various tasks' performance were added.

Results:
76 nurses responded. The descriptive statistics present the following: 49% of the respondents are working 32 hours weekly, 79% were born in Israel, 72% completed a BSN program. 57% would like to change to a different ward within the next 5 years. 63% are very happy about the choice of the nursing profession, 50% feel that their job is exciting and challenging. Overall, there was a positive trend in describing the educational process to becoming an independent nurse. Overall, most nurses feel comfortable performing nursing tasks independently.

Recommendations:
A refinement of the process from novice to expert should be evaluated periodically and modification should be applied where needed.
Further qualitative analysis will deepen the understanding of novice to expert.

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88 Compliance with protective measures post COVID-19 vaccine among nurses

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Background
The World Health Organization has declared the COVID-19 outbreak to be a public health emergency of international concern. Frequent international travelling and dense populations intensified the spread of the pandemic rapidly throughout the world. Nurses, as the primary care providers, are at higher risk of getting infected, as well as transmitting to others. Protective measures such as hand hygiene, social distancing and wearing masks, have been proven to be effective in preventing the spread of the COVID-19 infection.

Aim
to compare nurses' compliance with protective measures before and after receiving the COVID-19 vaccine.

Methodology
A quantitative-descriptive study was performed between August and October 2021, utilizing a questionnaire that was distributed to nurses via social media platforms, such as WhatsApp, Facebook, email. Inclusion criteria was nurses working in the community or hospitals, and who had received two doses of the COVID -19 vaccine. The questionnaire contained questions about COVID-19 spreading prevention conduct pre- and post- receiving the vaccine. In addition, there were general questions about prevention perceptions.

Results
Of the 516 nurses who filled out the questionnaire, 472 met the inclusion criteria. Respondents' age ranged between 20-67; and were from diverse religious groups, different employment organizations, and various fields of expertise.
A significant positive correlation was found between keeping protective measures prior to and after receiving the vaccine. In addition, significant positive correlations were found between age and years of experience, and compliance with protective measures. Less experienced staff self-reported less attention to applying preventative measures, in contrast with more experienced staff. Ages 20-35 reported less application of preventive measures in comparison with ages 36-45 or 46-55.

Recommendations
The importance of COVID-19 preventative measures should be reinforced specifically to younger and less-experienced staff.

Division of Nursing and Complementary Care

89 The Corona Queens - experiences of head nurses of COVID-19 wards

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Background
On March 2020, the World Health Organization (WHO) declared COVID-19 as a pandemic. Shortly after, Shaare Zedek Medical Center (SZMC) opened their first COVID-19 unit and has since been one of Israel's leading hospitals in caring for COVID-19 patients. Initially, the COVID-19 pandemic posed significant challenges to healthcare systems worldwide -- an unknown virus, with unknown treatment modalities, and uncertainty in patient outcomes. Nurses were forced to quickly translate routine clinical guidelines to a new and unfamiliar setup. Adverse psychological impact on healthcare workers is a key consideration, especially of nurses who provided direct patient care to COVID-19 patients under these special circumstances. The nurses in charge, in addition, had faced unique challenges such as the formation of new departments with new and unfamiliar staff, the introduction of a different style of care while wearing protective devices; alongside concerns about the wellbeing of staff and their family members, facing death daily, and coping with ongoing management challenges.

Aim
Exploring experiences of head nurses in managing COVID-19 wards during the various waves of the pandemic.

Methodology
A qualitative analysis was utilized interviewing 10 head nurses who were in the role of charge nurses of the different COVID -19 wards during the pandemic peaks. Helsinki waiver was obtained. The interviews were conducted at a time and place of the nurses' convenience. The interviews were taped with the permission of the interviewees; the taped conversations were transcribed verbatim, omitting interviewees' identities.

Results
Following qualitative analysis, the texts revealed common elements in the stories, ideas, feelings. Two main themes were extracted from the descriptive and rich texts. Emotions and Special challenges.
The "emotions" theme reveals a broad spectrum of emotions, from extremely negative to positive. The "special challenges" theme expresses the head nurses' near-impossible position, juggling patients' needs and staffs' wellbeing.

Recommendations:

- It's essential to convert a complete department into a COVID-19 ward as a single unit, rather than assembling staff from various wards into a new one.
- Psychological support must be an integral part of the ward's infrastructure.

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90 Attitudes and interpretations toward the meaning of "Patient centered care" and its implementation in Rehabilitation settings.

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Scientific background: In recent years, there has been a change in the traditional approach in medical care, from treating a disease to treating the patient as a person with unique needs and characteristics. The Israel Ministry of Health has also made this change by adopting the Patient Centered Care (PCC) approach as one of its main goals.

Objectives: To analyze how policymakers, medical staff, and patients perceive the patient experience, the PCC approach, and the association of the approach with rehabilitative-care outcomes.

Methodology: Mixed-method research: the qualitative part is based on sixty semi-structured in-depth interviews with senior managers and policymakers, members of medical staff from two rehabilitation centers, and post-stroke patients aged 50-70. The quantitative part is based on interviews with seventy post-rehabilitation patients. Functional outcomes are measured by FIM scores, reflecting evaluations by medical staff, and the PROMIS10-a patient-reported outcomes evaluation questionnaire.

Findings: Policymakers and staff members interviewed address some of the components of the PCC approach-primarily the importance of listening and discourse, improving therapeutic continuity and preparation for discharge, treating the patient and family as one unit. Patients are interested in being listened to, shared decision-making, and treated as whole persons with unique needs. The change in FIM indicates the effectiveness of rehabilitation. The relation between functional improvement in FIM terms and the mental component in PROMIS10 implies the importance of addressing the components of the PCC approach and providing mental support to the patient. Policymakers suggest that the cost of implementing PCC is not substantial, but its implementation will improve the quality of treatment and responsiveness to it and reduce future hospitalizations.

Conclusions and Recommendations: Awareness of the importance of patients' experience and the PCC approach exists. How the approach should be implemented and evaluated, however, is not sufficiently clear to the interviewees. It is necessary to check interpersonal communication skills during screening candidates for the health professions, to train practitioners and implement service work, to reduce burnout and ensure a work environment that will enable an appropriate treatment session and continuity of care, coordinating care, and assuring interaction among caregivers, and monitoring, including standardization issues.

Division of Nursing and Complementary Care

91 The moderating role of coping flexibility in reports of somatic symptoms among early breast cancer patients

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Objective: The current study focused on the assessment of reported somatic symptoms during the first six months post diagnoses of breast cancer and examined the moderating role of PACT (Perceived Ability to Cope with Trauma) subscales - trauma focused and forward focused coping strategies - on the association between reported somatic symptoms three and six months after breast cancer diagnosis.

Method and measures: An international sample of 702 women diagnosed with breast cancer from four countries (Finland, Israel, Italy, Portugal) completed self-reported questionnaires at three time points: at the time of diagnosis (M0), after three (M3) and six months (M6) post diagnosis. Demographic variables, medical data, coping flexibility and somatic symptoms drawn from two scales of general quality of life and specific to breast cancer were collected.

Results: The highest level of somatic symptoms was reported after three months post diagnoses (M3), as compared to M0 and M6. Both trauma-focused and forward focused coping strategies moderated the relationship between somatic symptoms at M3 and M6.

Conclusion: The findings highlight the importance of assessing somatic symptoms soon after breast cancer diagnosis and throughout the early phase of treatment. Trauma-focused and Forward-focused coping can buffer the stability of the somatic symptoms during this initial phase.

92 Recurrent short interpregnancy interval: Maternal and neonatal outcomes

(Eur J Obstet Gynecol Reprod Biol. 2021 Sep;264:299-305)

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Objective

To evaluate maternal and neonatal outcomes associated with recurrent short interpregnancy interval (IPI) in women in their third delivery.

Methods

A retrospective computerized database study of all women who delivered their first three consecutive deliveries in a single tertiary medical center over 20 years (1999-2019). Maternal and neonatal outcomes of women with recurrent short IPI (<6 months between the 1st and 2nd pregnancy and the 2nd and 3rd pregnancy) were compared to women with recurrent optimal IPI (18-48 months), and to women with a single short IPI (<6 months between the 1st and 2nd pregnancy followed by an optimal IPI of 18-48 months between the 2nd and 3rd pregnancy). Additionally, in the recurrent short IPI groups, outcomes of the 2nd and 3rd pregnancies were compared in order to achieve an ideal adjustment to background characteristics. Univariate analysis was followed by multiple logistic regression models; adjusted odds ratios (aORs) and 95% confidence intervals (CIs) were calculated.

Results

During the study period 10,569 women had three consecutive deliveries at our medical center, of those 338 (3.2%) women had recurrent short IPIs, and 1,021 (9.7%) had recurrent optimal IPIs. Recurrent short IPI was associated with a significantly higher risk of maternal anemia (Hb < 10gr%) on admission to labor (aOR 3.4 [95% CI 1.09-10.65], p = 0.04) and higher risk of small for gestational age neonates (aOR 10.4 [95% CI 2.32-46.93], p < 0.01), as compared with women with recurrent optimal IPI and significantly higher rates of low neonatal birth weights (2500 gr) and anemia (Hb < 10gr%) alongside lower rates of operative vaginal deliveries as compared with women with single short IPI followed by an optimal IPI. In the recurrent short IPI groups, the 3rd deliveries had significantly higher rates of in-labor cesarean and anemia (Hb < 10gr%) on admission as compared to their 2nd deliveries.

Conclusion

Recurrent short IPI is associated with maternal anemia and small for gestational age neonates. Guiding patients towards prolongation of the IPI should include explanatory comments on these outcomes.

93 Pravastatin Effect on Obstetrics Complications Associated with Uteroplacental Insufficiency: A systematic review and Meta-Analysis (submitted)

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Objective: The role of Statins in treating and preventing endothelial dysfunction is well established. Obstetrical complications that involve uteroplacental insufficiency associated disorders as preeclampsia, intrauterine growth restriction, and obstetric antiphospholipid syndrome share the same pathophysiology and risk factor as do cardiovascular diseases treated with Statins. The purpose of this meta-analysis was to evaluate Statins' effect on pregnancy prolongation, neonatal and maternal morbidity in a distinct group of obstetrical complications that involve uteroplacental insufficiency disorders.

Data sources: Electronic databases including PubMed, Medline, Embase, Clinical Trials Registry Clinicaltrials.gov, and The Cochrane Library were searched from inception to February 2020.

Study Eligibility Criteria: cohort studies and randomized controlled trials evaluating the effect of Statins' treatment on pregnancies with uteroplacental insufficiency disorders were selected for inclusion.

Methods: Pooled odds ratios were calculated using a random-effects model and meta-regression was utilized when applicable.

Results: Seven studies were included in the analysis with a total of 200 parturients with uteroplacental insufficiency-associated disorders. Of whom, 105 were treated with Pravastatin and 95 did not. Parturients that received Pravastatin showed significant prolongation of pregnancy from randomization to delivery (mean difference=6.1 weeks, 95%CI;1.4-10.8, p=0.01, I2=98%), and less neonatal critical care unit admission (OR=0.21, 95%CI; 0.07-0.64, p=0.01, I2=32%). There was a trend toward a decrease in perinatal death, (OR=0.3, 95%CI;0.08-1.02, p=0.05, I2=19%), a new diagnosis of preeclampsia (OR=0.38, 95%CI;0.13-1.12, p=0.08, I=0%), and an increase in birth weight under Pravastatin treatment (mean difference=771 gr, 95%CI (2-1540), p=0.05, I2=97.4%). A meta-regression analysis revealed an association between prolongation of pregnancy from randomization to delivery (R2=0.7) and birth weight (R2=0.6) to study type (RCT vs cohort). No dose-response effect or association between the outcomes and earlier initiation of Pravastatin treatment was demonstrated.

Conclusions: Treatment with Pravastatin in parturients who have a high risk for developing uteroplacental insufficiency disorders or have an existing preeclampsia/severe IUGR may improve their neonatal outcomes.

94 Trauma and pregnancy: Is flow cytometry detection and quantification of fetal red blood cells useful?

(EurJ Obstet Gynecol Reprod Biol 2021 Nov;266:48-54)

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Objective: To assess whether positive flow cytometry quantification of fetal red blood cells is associated with adverse maternal and neonatal outcomes in cases of mild trauma during pregnancy.

Study design: A retrospective database study was conducted at a single tertiary center between 2013 and 2019. All pregnant women with viable gestation involved in trauma who underwent flow cytometry quantification of fetal red blood cells were included in the study. Flow cytometry was considered positive (≥0.03/≥30 ml). Composite adverse maternal and neonatal outcome was defined as one or more of the following: intrauterine fetal death, placental abruption, pre-term birth <37 weeks of gestation, immediate premature rupture of the membranes, and immediate delivery following trauma. Univariate analysis was performed followed by multivariate logistic regression analysis controlling for potential confounders, to assess the role of flow cytometry in predicting adverse maternal and neonatal outcome. Adjusted odds ratios (aORs) and 95% confidence intervals (CIs) were calculated.

Results: During the study period 1023 women met inclusion and exclusion criteria. The mechanisms of injury were motor vehicle accident in 387 women (38%), falls in 367 (36%), direct abdominal injury in 353 (35%) and in 14 women (1%) other mechanism of injury. Flow cytometry was considered positive (≥0.03/≥30 ml) in 119 women (11.6%) with median result of 0.03 [0.03-0.04], and negative in 904 women (88.4%) ((≤0.03/≤30 ml) with median result of 0.01 [0.01-0.02]. Composite adverse outcome occurred in 8% of the women involved in trauma during pregnancy, with no difference between the groups with vs. without positive flow cytometry (4.2% vs. 8.5%; p = 0.1). Positive flow cytometry was not associated with any adverse maternal or neonatal outcome. This was confirmed on multivariate analysis controlling for potential confounders.

Conclusion: Flow cytometry result is not related to adverse maternal and fetal/neonatal outcome of women involved in minor trauma during pregnancy. We suggest that flow cytometry should not be routinely assessed in pregnant women involved in minor trauma.

95 Covid-19 vaccination during the third trimester of pregnancy: rate of vaccination and maternal and neonatal outcomes, a multicentre retrospective cohort study

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Objective: To evaluate the impact of Covid-19 vaccination (Pfizer-BioNTech BNT162b2) during the third trimester of pregnancy on maternal and neonatal outcomes.

Design: A multicentre, retrospective computerised database.

Population: Women who gave birth at >24 weeks of gestation in Israel, between January and April 2021, with full records of Covid-19 disease and vaccination status.

Methods: Women who received two doses of the vaccine were compared with unvaccinated women. Women who were recorded as having disease or a positive Covid-19 polymerase chain reaction (PCR) swab during pregnancy or delivery were excluded from both study groups. Univariate analysis was followed by multivariate logistic regression.

Main outcome measures: Composite adverse maternal outcomes. Secondary outcomes were vaccination rate and composite adverse neonatal outcomes.

Results: The overall uptake of one or both vaccines was 40.2%; 712 women who received two doses of the Covid-19 vaccine were compared with 1063 unvaccinated women. Maternal composite outcomes were comparable between the groups; however, women who received the vaccine had higher rates of elective caesarean deliveries (CDs) and lower rates of vacuum deliveries. An adjusted multivariable logistic regression analysis demonstrated that Covid-19 vaccination was not associated with maternal composite adverse outcome (aOR 0.8, 95% CI 0.61-1.03); a significant reduction in the risk for neonatal composite adverse outcomes was observed (aOR 0.5, 95% CI 0.36-0.74).

Conclusions: In a motivated population covered by a National Health Insurance Plan, we found a 40.2% rate of vaccination for the Covid-19 vaccine during the third trimester of pregnancy, which was not associated with adverse maternal outcomes and, moreover, decreased the risk for neonatal adverse outcomes.

SZMC Research Conference 2022

96 The maternal leukocyte count at admission for labor is indicative of early maternal postpartum infectious morbidity and adverse neonatal outcome

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Objectives
Investigate the association between maternal leukocyte count at admission for labor and postpartum infectious maternal morbidity (PPIM) following vaginal delivery.

Study design:
Retrospective cohort study, 2005-2017. Afebrile women, term, singleton, vaginal delivery included. Maternal leukocyte/differential at admission for labor and 24 h postpartum were analyzed as continuous values and quintiles. Pre/postpartum difference (Δleukocyte) was calculated. The primary outcome was maternal PPIM, early and late. The secondary outcome was adverse neonatal outcomes (ANO).

Results:
58,174 eligible deliveries out of168,979 (34.4 %); 1068 (1.8 %) women with PPIM. The rate rose linearly from 1.4 % for the lowest admission for labor leukocyte quantile to 2.7 % for the highest quantile, p for trend <0.001. The women with early PPIM had significantly higher admission levels of leukocytes (mean): 12.04 ± 3.43 vs. 11.18 ± 2.86 × 10^3/μl; neutrophils, 9.48 ± 3.46 vs. 8.40 ± 2.67 × 10^3/μl; and monocytes 0.76 ± 0.25 vs. 0.72 ± 0.23 × 10^3/μl); p < 0.001 for all. The mean leukocyte count for women with PPIM diagnosis, including only postpartum fever, was 12.06 ± 2.64; significantly higher than in the non-PPIM group, p = 0.014. A Δleukocyte value of >3.7 × 10^3/μl is significantly associated with PPIM, aOR 2.10 [1.82-2.41]. No significant association between leukocyte count or Δleukocyte and maternal readmission rate due to infectious complications. 386 neonates (0.7 %) had records of ANO and 64 neonates (0.1 %) had records of neonatal sepsis, positive linear association; p for trend < 0.001. The maternal Δleukocyte value of >3.7 × 10^3/μl was found to be significantly associated with the risk for ANO, aOR 1.5[1.19-1.90].

Conclusion:
In healthy women, an elevated level of the leukocyte count at admission for labor and the Δleukocyte are significant risk predictors of PPIM and ANO.

97 NICU admission for term neonates in a large single center population: a comprehensive assessment of risk factors using a tandem analysis approach

(submitted for publication, to be presented at SMFM 2022)

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Objective: Neonatal intensive care unit (NICU) admission among term neonates is associated with significant morbidity and mortality as well as health care costs. A comprehensive NICU admission risk assessment using an integrated statistical approach for this rare admission event may be used to build an algorithm for this group of neonates prior to delivery.

Methods: A single-center case-control retrospective study was conducted between August 2005 and December 2019, including in-hospital singleton live born neonates, born at ≥37 weeks' gestation. Analyses included univariate and multivariable models combined with the machine learning gradient-boosting model (GBM). The primary aim of the study was to identify and quantify risk factors and causes of NICU admission of term neonates.

Results: During the study period, 206,509 births were registered at the Shaare Zedek Medical Center. After applying the study exclusion criteria, 192,527 term neonates were included in the study; 5,292 (2.75%) were admitted to the NICU. The NICU admission risk was significantly higher (ORs [95%CIs]) for offspring of nulliparous women (1.19 [1.07, 1.33]), those with diabetes mellitus or hypertensive complications of pregnancy (2.52 [2.09, 3.03] and 1.28 [1.02, 1.60] respectively), and for those born during the 37 week of gestation (2.99 [2.63, 3.41]; p<0.001 for all); adjusted for congenital malformations and genetic syndromes. A GBM to predict NICU admission applied to data prior to delivery showed an area under the receiver operating characteristic curve of 0.750 (95% CI 0.743–0.757) and classified 27% as high risk and 73% as low risk. This risk stratification was significantly associated with adverse maternal and neonatal outcomes.

Conclusion: The present study identified NICU admission risk factors for term neonates; along with the ML ranking of the risk factors and the highly predictive model may serve as a basis for individual risk calculation algorithm prior to delivery. We suggest that in the future, this type of planning the delivery will serve different health systems, in both high and low resource environments, along with the NICU admission or transfer policy.

98 Neonatal intensive care unit admission and childhood mortality: a peril paradigm for term neonates

(submitted for publication, to be presented at SMFM 2022)

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Objective
Neonatal intensive care unit (NICU) admission among term neonates is a rare event; and associated with significant immediate morbidity and mortality. The aim of this study was to study the impact of the NICU admission and the diagnoses for admission of term neonates on the risk of long-term childhood mortality.

Methods
A single-center case-control retrospective study was conducted between August 2005 and December 2019, including all in-hospital ≥37 weeks' gestation singleton live born neonates. The Shaare Zedek Medical Center perinatal database was linked with the birth and death certificate registries of the Israeli Ministry of Internal Affairs. Analyses included univariate and Cox regression models. The primary aim of the study was to study the NICU admission and the impact of the diagnoses at admission on childhood mortality throughout a 15-year follow up period as compared to children with no NICU admission.

Results
During the study period, 206,509 births were registered; 192,527 term neonates were included in the study; 5,292 (2.75%) were admitted to NICU. For all term neonates the mortality rate from birth up to 15 years of follow up was 0.16% (n=311). Subsequent to exclusion of congenital malformations and chromosomal abnormalities, NICU admission remained the most significant risk factor associated with mortality for any diagnosis at admission HRs, 364.4 [145.3; 913.3] for mortality in the first 7 days of life and 19.6 [12.1; 32.0] from 28 days through 6 months of life and remained markedly elevated after age 4 years (HR, 7.1 [3.0; 17.0]). Overall, for the entire period of follow-up, the mortality risk for term neonates admitted to the NICU remained elevated compared to those with no NICU admission HR, 19.72 [14.66, 26.53], (p<0.001, for any of the diagnoses at admission).

99 Risk of postpartum hemorrhage in multiparous women with Gaucher disease: A call for reconsidering enzyme replacement therapy in all pregnant patients

(J Inherit Metab Dis. 2021 Sep;44(5):1165-1173)

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Objective
For the last three decades, enzyme replacement therapy (ERT) for Gaucher disease (GD) has been available. We aimed to evaluate the effect of ERT on the pregnancy and obstetric outcome in a unique group of multiparous women with type 1 GD (GD1) who had pregnancies with and without ERT.

Methods
The Gaucher Unit database (1987-2019) was searched for multiparous women who had pregnancies before and after the institution of ERT. Data were collected from the clinic files and study-specific questionnaires. Descriptive, correlation analysis and generalized estimating equations (GEE) were used to study the effect of ERT and confounding variables on study outcomes.

Results
We identified 19 women with 105 pregnancies, among which 26 (24.7%) terminated in first-trimester miscarriage. The risk for miscarriage was associated with the severity of GD1 genotype and phenotype, but not with ERT usage. Early postpartum hemorrhage (PPH) was reported in 16 (84%) women after 25 deliveries (31.6%, 95% CI 21.6%-43.1%). The risks of early PPH and red blood cell (RBC) transfusions were significantly lower when ERT was used during pregnancy, OR (95% CI) 0.13 (0.03-0.54) and 0.27 (0.08-0.94), respectively, compared to pregnancies without the use of ERT. Enzyme replacement therapy during pregnancy is risk reducing for early PPH and RBC transfusions in women with GD1.

Conclusion
We suggest considering ERT for the benefit of all pregnant women with GD1, including mild GD1.

100 Early fetal anatomy scan at 14-16 weeks: detection rate of major fetal malformations. A prospective cohort study in a low risk population in a community setting

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Introduction
Local practice is to offer an additional early routine anatomy scan at 14-16 weeks on top of the routine mid pregnancy scan. Data on its performance are lacking. The purpose of this study was to prospectively evaluate the detection rate of major structural anomalies on the early anatomy scan in a low risk population.

Patients and methods
Data was prospectively collected from experienced sonographers on the result of the 14-16 week scan. Women with risk factors for fetal anomalies were excluded. Most women obtained the midtrimester scan on top of the 14-16 week scan. Women were contacted 3-12 months after delivery and asked about pregnancy outcome, and results of the mid-pregnancy scan. Assuming the prevalence of major anomalies in our low-risk population is 1% and detection rate at the early second trimester is 50%, a sample size of 3058 women was expected to detect at least 10 women with major anomalies (0.5% ±0.25%). The study was approved by the local ethics committee (SZMC-0278-17). All women gave informed consent.

Results
Mean gestational age was 15 +4 weeks. In 31/3282(0.94%) of eligible patients an anomaly was detected. Patients terminated the pregnancy in 8/31 (25.8%) of these cases. In 46/3251 (1.4%) cases with a normal early scan, anomalies were detected later; 36 (1.11%) later in gestation and 10 (0.31%) in the neonatal period. Sensitivity of the early scan for detecting major anomalies was 31/77 (40.2%) with a negative predictive value of 3251/3282 (99.0%).

Discussion
Detection rate for fetal anomalies is lower in the early second trimester scan as compared to the standard mid pregnancy scan. This difference is explained by the developmental nature of some anomalies, and by the nature of the more technically challenging early scan. As early diagnosis led to termination of pregnancy in a minority of cases, justifying addition of the early scan to the pregnancy.

101 Delayed presentation of ectopic pregnancy during the COVID-19 pandemic: A retrospective study of a collateral effect

(Int J Gynaecol Obstet. 2021 Jun;153(3):457-461)

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Objective
We aimed to assess the rates of overall diagnosis of ectopic pregnancy (EP), treatment modality and associated complications during the COVID-19 pandemic compared to the exact time period in the previous year (pre-COVID-19).

Methods
A retrospective cohort study was conducted at a single referral regional center (Shaare Zedek Medical Center, Jerusalem, Israel). Prevalence of the diagnosis of EP, treatment modality and associated complications during the COVID-19 lockdown period in the state of Israel (March 10-May 12, 2020) was compared to patients receiving the same diagnosis during the parallel timeframe in the previous year (2019).

Results
Overall there were 29 and 43 cases of EP during the COVID-19 and pre COVID-19 epoch, respectively. COVID-19 period patients presented to the emergency room with significantly higher β-human chorionic gonadotrophin level; median of 1364 versus 633 IU, P = 0.001. The rate of ruptured EP was; 20.7% versus 4.3% P = 0.031, and surgical approach; 55.2% versus 27.9%, P = 0.001. Significantly higher median volume of blood loss; median volume 852 versus 300 ml, P = 0.042 were observed in patients during the COVID-19 epoch.

Conclusion
The COVID-19 pandemic led to delayed presentation of patients with EP, and the requirement of subsequent emergency surgical management and excessive blood loss. Special attention should be given to the decline in routine medical care during the pandemic.

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102 Maternal and neonatal outcomes of women that conceived less than 6 months after first trimester dilation and curettage procedure

(accepted for presentation SMFM 2022)

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Objective
To evaluate maternal and neonatal outcomes of pregnancies conceived ≤6 months after first trimester (<14 weeks) dilation and curettage (D&C).

Methods
A retrospective computerized database study of women who conceived ≤6 months following a missed abortion and delivered in a single tertiary medical center between 2017 and 2021. Maternal and neonatal outcomes of women who had D&C were compared to women who had non-medical or spontaneous abortion. The primary outcome of this study was the rate of preterm birth (<37 weeks). Secondary outcomes were composite adverse maternal and neonatal outcomes. Univariate analysis was followed by multiple logistic regression models; adjusted odds ratios (aORs) and 95% confidence intervals (CIs) were calculated.

Results
During the study period 1,082 women met inclusion criteria, of those 745 (68.9%) women gave birth following D&C. We found no differences between the study groups, in any maternal or neonatal parameter examined including preterm birth, interpregnancy interval, hypertension disorders of pregnancy, placental complications, mode of delivery and neonatal birth weights. This was confirmed on a multivariate analysis as well (aOR 1.14 [95% CI 0.61-2.13], p=0.67 for preterm birth).

Conclusion
First trimester D&C is not associated with an increased rate of adverse events in the subsequent immediate pregnancy. When choosing mode of termination of first trimester missed abortion, women should be reassured by these findings.