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Posters

Hui Yu et al., J Blood Disord Transfus 2017, 8:2(Suppl)
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GDPT versus CHOP in newly diagnosed peripheral T-cell lymphoma: A prospective randomized controlled, open-label study (No.NCT01664975)

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Background & Aim: Peripheral T-cell lymphoma is a distinct lymphoid neoplasm with aggressive course and poor outcome. Optimal treatment strategies for peripheral T-cell lymphoma have not been well defined. We compared the efficacy and safety of GDPT and CHOP regimens for patients with newly diagnosed peripheral T-cell lymphoma in a prospective randomized controlled and open-label clinical trial (No.NCT01664975).

Methods: All eligible patients with newly diagnosed peripheral T-cell lymphoma had measurable disease with an ECOG performance status ≤2 and adequate organ function. GDPT or CHOP chemotherapy was randomly assigned to patients. Patients in arm GDPT received intravenous gemcitabine (0.8 g/m^2) in 30 min on days 1 and 8, cisplatin (25 mg/m^2) on days 1-3, and oral prednisone (60 mg/m^2) on days 1-5, thalidomide (200 mg) until the end of the whole chemotherapy. Patients in group CHOP received intravenous cyclophosphamide (750 mg/m^2), doxorubicin (50 mg/m^2) and vincristine (1.4 mg/m^2, maximum 2 mg) on day 1, and oral prednisone (60 mg/m^2) on days 1-5. Each cycle was repeated six times every three weeks. Efficacy was evaluated every two cycles. The primary endpoint was to evaluate the efficacy assessed by progression-free survival. Secondary end points included response rate and overall survival.

Results: Between July 2010 and June 2016, 103 patients allocated into two groups randomly, of whom 52 were treated with GDPT therapy and 51 were treated with CHOP therapy. Patient characteristics were well balanced within the two arms of treatment at enrollment. The 2-year progression-free survival (PFS) and overall survival (OS) rates were better in GDPT group than that in CHOP group (57% versus 35% for 2-year PFS, P=0.0035; 71% versus 50% for 2-year OS, P =0.0001). Complete remission (CR) rate and overall response rate (ORR) of GDPT group were higher than that in CHOP group (52% versus 33%, P=0.044 for CR rate; 67% versus 49%, P=0.046 for ORR). Adverse effects of chemotherapy were hemocytopenia predominantly in both arms. No differences were observed between the two arms in terms of grade 3/4 myelosuppression, digestive tract, hepatic, renal, cardiac or neurological toxicity. Acute toxicity was moderate, tolerable and well managed in both arms.

Conclusions: GDPT chemotherapy resulted in significant improvement in PFS and OS compared with CHOP chemotherapy and side effects of chemotherapy was well tolerated for newly diagnosed peripheral T-cell lymphoma patients. Therefore, GDPT is a promising new regimen as potential first-line therapy against peripheral T-cell lymphoma.

Biography

Hui Yu is an Associate Professor in Department of Oncology at First Affiliated Hospital of Zhengzhou University. She completed her Medical studies at Xiangya School of Medicine, Central South University, and obtained her PhD degree in Cancer Research at University of Texas Health Science Center, San Antonio. Her research during PhD focused on "The signaling mechanisms responsible for the bystander responses induced by radiation therapy in non-targeted cells, which could result in clonal selection and tumor recurrence at the treatment site". After Residency training and Clinical fellowships at First Affiliated Hospital of Zhengzhou University, she has now expertise in the Diagnosis as well as Chemotherapy and Auto/Allo Stem Cell Transplantation for patients with lymphoma. As a Physician-Scientist who conducts laboratory and clinical research in hematological malignancies, her current research interests include "Molecular pathogenesis stratified treatment of T-cell lymphoblastic lymphoma".

Kamran Mansouri et al., J Blood Disord Transfus 2017, 8:2(Suppl)
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Warfarin dosing in a patient with CYP2C9*1*2 and VKORC1-1639 AA genotypes

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Genetic factor broadly influence the required doses of warfarin. Genetic factors including the presence of *CYP2C9* and *VKORC1-1639 G>A* genes have a significant effect on the due doses of warfarin in individuals. In the present study, a patient was reported to have a high sensitivity to warfarin dosage. Thereby, he required lower dose of warfarin to get to the target INR. VKORC1-1639 AA, CYP2C9*1*2 genotypes were revealed to exist through patient's genetic testing.

Biography

Kamran Mansouri completed his PhD at Tehran University of Medical Sciences, Iran. He is the Head of Department of Molecular Medicine at Kermanshah University of Medical Sciences, Iran. He has published more than 50 papers in reputed journals.

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Samah Mohamed Abd Elgaphar et al., J Blood Disord Transfus 2017, 8:2(Suppl)
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The effect of exercise training and telenursing on dietary habits and fatigue level among adult patients with anemia

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Background: Regular exercise is important for overall health and should be a part of daily routine of patient with anemia. Telenursing (providing nursing care at a distance) is an efficient technique for transporting educational services for anemic patients to their homes that consequently promote nurse-patient relationship, safe time and reduce the cost of treatment.

Aim: Aim of this study is to investigate the effects of exercise training combined with three months nurse–telephone follow up calls on dietary habits and fatigue level among adult patient with anemia.

Design & Method: A quasi experimental study was conducted on 60 anemic patients who were selected randomly in medicine department and hematology outpatient clinic of Menoufia university hospitals using three tools of data collection; structured interviewing questionnaire to assess the patients' sociodemographic and medical data; dyspnea analogue scale to assess exercise tolerance and; fatigue scale. Exercise training was specific for the study subjects and they were followed by telephone follow up calls for three months by the researchers.

Results: All anemic patients suffer from fatigue before intervention. With telenursing follow up calls, the total score of fatigue were decreased after one month of exercise performance than before and continuously decreased after three months of exercise performance. Also the dietary habits were changed to better after intervention.

Conclusion: The exercise training combined with follow up calls was effective in improving dietary habits and decreasing fatigue level among anemic patients. It is suggested for performing and training the regular exercises as a routine care for anemic population.

Biography

Samah Mohamed Abd Elgaphar has completed her Doctorate degree in Medical Surgical Nursing in June 2009 at Menoufia University and Post-doctoral studies at Menoufia University. She is an Assistant Professor of Medical Surgical Nursing, Faculty of Nursing Menoufiya University. She has published more than nine papers in nursing and medical journals and has been serving as a Quality Organizer in Medical Surgical Nursing department. She has participated through talks and posters in more than 40 medical and nursing conferences and workshops.

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Congenital dyserythropoietic anemia type II revealed in Georgia

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Objective: The congenital dyserythropoietic anemia (CDA) is a rare hereditary disorder, characterized by ineffective erythropoiesis and distinct morphologic abnormalities of erythroblasts in the bone marrow. This study was carried out to investigate infant with CDA type-II and make long-term observat on.

Methods: A full term infant, aged seven month, presented with pallor and jaundice of the skin, moderate splenomegaly and severe anemia was enrolled in the study. Pallor appeared in the five month of life, which was not interpreted correctly. Profound anemia revealed by seven month of age, at the time of admission. Investigations include: detailed history and physical examination, information about used medications, complete blood count with red cell indices, reticulocyte count, iron metabolism, bilirubin, liver and kidney function tests, bone marrow examination, abdominal ultrasound, parvovirus B19 antibodies, measurement of hemoglobin F, folic acid and vitamin B12 levels and acidified serum lyses test. We made packed red cell transfusions each month as a result of profound anemia.

Results: Based on clinical and para clinical data analyses and catamnestic observation, this case was diagnosed with CDA type-II. Diagnostic criteria were: Evidence of congenital chronic anemia with law reticulocyte count for the degree of anemia; increased serum iron and ferritin levels, indirect hyper-bilirubinemia and; typical morphologic abnormalities of the erythroblasts (CDA erythroblasts-30%) in the bone marrow. Acidified serum lyses test was positive.

Conclusion: We had a chance to observe infant with CDA type-II. This rare diagnosis was raised for the first time in Georgia. Anemia was non-responsive to iron, folic acid and vitamin B12. The diagnosis of CDA should be suspected in case of refractory anemia of long duration with a low reticulocyte count for the severity of anemia, features of iron overloud, bi-nucleated normoblasts. Early diagnosis of the disease will allow us to prevent iron abundance caused by multiple blood transfusions. Only curative treatment is allogeneic bone marrow transplantation which is currently not possible due to the absence of HLA-compatible donor. The observation on this patient and blood transfusion has been continued per month.

Biography

Zaza Mtvarelidze is a Pediatric Hematologist of Children's New Clinic.Tbilisi.Georgia. For 20 years he has been working on the problems of inherited and acquired anemias in children. He has published 58 articles on this problem in Georgian and European medical Journals. He is the author of two Monographs: Anemia in Children and Iron Deficiency Anemia in Children. In recent years he had become interested in the beta-Thalassemia Major

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Increasing haematology research for patient benefit through the development of trainee leaders in research: A UK initiative

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The aim of the National Institute for Health Research (NIHR) UK is to deliver best research for best health. In addition to funding research, clinical research networks also help to deliver studies on time and on target. There is ample evidence that shows involvement in research leads to improve patient outcomes but this opportunity is not always available, especially if haematology consultants with limited academic experience find the process daunting. To tackle this, a national initiative has been launched to develop regional trainee champions in research. This aims to address the inexperience by providing trainees with the relevant exposure to research. The trainees, in their turn, will be helping the NIHR key objectives such as developing the research portfolio further and increasing the number of participants recruited into studies. The aim is to recruit one registrar from each of the 15 regions in the UK to take up position of 'NIHR specialty trainee lead for haematology research'. Trainees attend several meetings with members of the NIHR who have helped them develop an understanding of how things work, and relevant courses to develop into this role such as leadership and management courses. They can also deputise for their regional seniors at National haematology clinical research network meetings. With these new skills on board, the haematology trainee learns to set up clinical trials in their local hospital, acquire understanding of barriers to research and how to overcome them as well as develop engagement skills with industry sponsors and service managers. They are recruiting patients into haematology clinical trials currently but the role will expand in the future with the aim of to provide local education about clinical trials, contribute towards national audits and assist in setting up centers locally for national clinical audits. The role will be locally responsive within a national framework and mentoring together with peer-supported networking will be available to grow this cadre of future leaders in research delivery within the UK. This new role for haematology trainees will provide early exposure to clinical trials and the basic skills in research on which trainees can build upon. This will provide confidence for them as new consultants to not be afraid of taking on new clinical trials and expand on ideas they may have themselves, building research/trials portfolios and as a consequence help develop haematology through good trials and research. The early success of this initiative could extend to other specialties to expand patient involvement in research and also provide a model for other countries to develop haematology research.

Biography

Eleana Loizou is a Hematology Trainee in the Mersey Deanery in England. She has recently completed the FRCpath Hematology Examination and she is now a member of the Royal College of Pathologists, UK as well as the Royal College of Physicians. She always had an interest in research right from the beginning of medical school and she has taken every such opportunity provided along the way. She is now the first Hematology Trainee in the Mersey Deanery to be involved in the NIHR's specialty trainee lead for Hematology research.

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Dental health in sickle cell disease

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Sickle cell disease (SCD) is one of the most common blood disorders typically inherited from one's parents. It is presented with a wide variety of clinical symptoms, and varied degrees of severity that can be determined based on the phase during which the disease is diagnosed, the age of the patient, number of hospitalizations in the past, requirement for continuous drug use and for blood transfusions, in addition to several other factors. It is highly critical that the physicians should be aware of the oral manifestations and physiopathology of the disease. Additionally, the dental surgeons should cautiously obtain the patient's clinical history and collect information about specific features so that they can build up a plan for any dental treatment that is in accordance to the patient's limitations and requirements. Maintaining a complete chart recording the general patient information along with periodically updating the medical history of the patient should be practiced by all the physicians. The treatment strategy should focus on the achievement and maintenance of oral health and to decrease the risks of dental complications. The literature summarizes the treatment of dental complications in patients with SCD.

Biography

Salma M AlDallal has completed her PhD at University of Manchester, UK. She has published 14 articles in reputed journals and has experience in Haematology & Blood Bank Laboratory. She has also published several papers in national and multi-national journals. She is the senior of training courses of haematology technicians at general hospital laboratory in Kuwait.

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Elevated coagulation FIX and risk of thrombosis development

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Coagulation involves the regulated sequence of proteolytic activation of a series of zymogens to achieve an appropriate and timely hemostasis in an injured vessel in an environment that favors an anticoagulant state. Alteration of hemostatic balance between the prothrombotic and antithrombotic factors can result in insufficient inhibition of coagulation thrombosis or bleeding due to excessive antithrombotic treatment. Fibrin is the key component of thrombi and anticoagulant drugs that reduce thrombin formation which are effective in both prevention and treatment of thrombosis. Therefore, an increased circulating level of coagulation factor is a must for treatment mechanisms of both venous and arterial thrombosis. The existing anticoagulants may have only limited effects due to their modest therapeutic benefits, increased bleeding risks, narrow clinical applications and drug-induced thrombophilia. However, some new oral anticoagulants, when administered optimally, are associated with significant anti-ischemic benefits and lower bleeding risk when compared with heparin and vitamin K antagonists. Since factor IX (FIX) plays a key role in tissue factor-mediated thrombin production, it may represent a promising target for drug development. This review aims to summarize the current data for FIX and its role in the development of thrombosis (although thrombosis is a platelet-centric process and FIX may not have any direct and specific effect on platelets).

Biography

S M AlDallal has completed her PhD at University of Manchester, UK. She has published 14 articles in reputed journals and has experience in Haematology & Blood Bank Laboratory. She has also published several papers in national and multi-national journals. She is the senior of training courses of haematology technicians at general hospital laboratory in Kuwait.

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Consistency of sheep's blood sugar using low voltage DC electric current after 3 hours

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In the whole blood samples, total blood sugar generally decreases 7 to 10% per hour due to RBCs consumption of glucose. In order to prevent glucose from being consumed by RBCs, specific amount of sodium fluoride is added to the blood samples to inhibit enolase enzyme involved in glycolysis pathway, therefore, the amount of blood sugar remains consistent. In this survey, the amount of blood sugar in samples contained EDTA and heparin, remained consistent after 3 hours, due to induction of low voltage electric current with the use of non-reactive platinum electrodes. However, after 3 hours a considerable reduction in glucose was clearly seen in absence of electric current in blood samples included EDTA and heparin. Probably due to providing the blood samples with a low voltage electric current, NAD in RBCs changes to NADH, subsequently the process of glycolysis in the RBCs is stopped due to the reduction of NAD. Thus, the glucose no longer is being used. The measured NADH proves what mentioned above. The amount of lactate dehydrogenase enzyme and Mg ion in all samples were not affected by the induced electric current and was remained unchanged. On the other hand, the amount of mentioned parameters above decreased in control samples.

Biography

Seyed Mohamad Sajjadi Dezfouli is a student of Veterinary Medicine at Islamic Azad University of Garmsar, Iran. He has published three papers and three books. He is a member of Iranian young researcher club and elite since 2012 and member of scientific association of Islamic Azad university of Garmsar, Faculty of Veterinary.

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Hematological parameters of three freshwater stingray species (chondrichthyes: Potamotrygonidae) in the middle Rio Negro, Amazonas state

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This paper aimed to study and compare the hematology of newborns, young, subadults, adult males, adult females and pregnant females of *Potamotrygon wallacei* (cururu stingray), *Potamotrygon motoro and Paratrygon aiereba*. Newborn cururu stingrays had lower red blood parameters than those of other development stages. Thrombograms and leukograms showed a conservative pattern between development stage, sexual dimorphism and pregnancy. *In P. motoro* and *P. aiereba*, variables relating to red blood parameters, biochemistry and leukograms showed little variation between the species' biological characteristics, thus showing that these variables are not good criteria for differentiating them within the same species. In conclusion, the development stage is an important factor for differentiating hematological properties in the cururu stingray, while this has not been observed in *P. motoro* and *P. aiereba* stingrays.

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Novel molecular changes in Saudi patients with familial hemophagocytic lymphohistiocytosis

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Background: Familial hemophagocytic lymphohistiocytosis (FHL) in different ethnicities has been described in the literature, but this is the first report from Saudi Arabia describing the novel mutations present in *FHL* genes.

Methods: 87 patients diagnosed with *FHL* from January 1995 to December 2014 at King Faisal Specialist Hospital and Research Centre was screened for HLH-associated genes. Their clinical and biochemical profiles were retrospectively captured. DNA from peripheral blood were used for mutation detection in various *HLH* genes- *PRF1, UNC13D, STX11, STXBP2, LYST, rab27A, SH2D1A* and *XIAP* by PCR-sequencing method. We report herein those with novel molecular changes.

Results: Biallelic mutations were identified in 66 patients (75.86%) in whom 18 (27.3%) patients were found to harbor 10 novel mutations distributed among five HLH-associated genes. *STXBP2* mutations were identified in the majority of patients (38%). All mutations were found to be damaging and disease. 10 patients with *UNC13D* had four novel mutations, two of which resulted in a stop codon. The most prevalent mutation is c.3048_3049insC (p.E1017RfsX8) was found in six patients. One patient had a novel missense mutation (c.862 T>C, p.W288R) in *STXBP2* gene. Another *STX11* mutation (601_602ins C, p. Q140Pfs*46) was found in one patient. Four novel mutations were found in seven patients in other genes *(LYST and rab27A)*. The novel molecular changes and their associated clinical characteristics were shown. Parent consanguinity and history of siblings with *HLH* were observed in 77% and 26% of patients, respectively. Furthermore, a tribal and geographical pattern was clearly found in patients harboring *STX11, STXBP2* and Unc13D mutations. *STXBP2* mutations are the most prevalent among Saudi FHL patients.

Conclusion: In more than a quarter of mutations in Saudi patients with FHL are novel. Furthermore, in quarter of our patients, no molecular defects were identified. This indicates that there are still more mutations to be discovered and also the possibilities of deep intronic mutations and other genetic aberrations cannot be definitely excluded. A high rate of consanguineous marriages and endogamy is seen in Saudi Arabians', and is present in large groups. A tribal and geographical pattern was clearly observed. Though the treatment is standardized for HLH, the impact of ethnicity and race on the severity and outcome may warrant further investigation.

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Biochemical and histological study on effect of bone marrow derived cells in treatment of cardiomyopathy in adult diabetic albino rat

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Diabetic cardiomyopathy (DCM) is a clinical condition, diagnosed when ventricular dysfunction develops in patients with diabetes mellitus (DM) in the absence of coronary artery disease, valvular heart disease or hypertension. 75% of patients with unexplained idiopathic dilated cardiomyopathy were found to be diabetic. Stem cells are capable of self-renewal through replication and differentiation into specific lineages aiding in tissue repair, they have a unique capacity to produce unaltered daughter cells (self-renewal) and to generate specialized cell type (potency). Chronic hyperglycemia is responsible for myocardial remodeling and is a central feature in the progression of DCM, which is characterized by hypertrophy and apoptosis of cardiomyocytes. Microcirculatory defects, necrosis and interstitial fibrosis are the main pathological characteristics of DCM. MSCs can induce myogenesis and angiogenesis either by releasing different angiogenic, mitogenic and antiapoptotic factors or by differentiating into cardiomyocytes. The aim of the current study is to evaluate the beneficial effect of transplantation of isolated, expanded and cultured bone marrow-derived cells from rat as treatment of experimentally induced diabetic cardiomyopathy in other adult albino rat.

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Associated inosine triphosphate pyrophosphatase gene polymorphisms and interferon/ribavirin-induced anemia in Egyptian HCV patients

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Background: It has been found that ITPase deficiency is caused by *ITPA* gene polymorphisms. It was observed that *ITPA* polymorphisms have impact on hematological changes, including hemoglobin (Hb)-decline and platelet decline during treatment of chronic hepatitis C (CHC) patients with pegylated-interferon (PEG-IFN) plus ribavirin (RBV).

Aim: Aim of this study is to evaluate the association of inosine triphosphate pyrophosphatase (*ITPA*) gene polymorphism rs1127354 and rs7270101 with the development of anemia in chronic hepatitis C (CHC) Egyptian patients during treatment with pegylated-interferon (PEG-IFN) plus ribavirin (RBV).

Methods: The current study included 100 selected Egyptian CHC patients treated with PEG-IFN/RBV, 55 patients developed anemia (Hb decline>2 g\dl) and other 45 would not develop anemia (Hb decline≤2 g\dl) at week 12 throughout the treatment course. Routine laboratory investigations were done for all participants (HCV-Abs, HBs Ag, HCV-RNA levels, complete blood picture, Liver and kidney function tests, AFP and TSH).Single nucleotide polymorphism (SNP) was done using real time PCR, ABI TaqMan allelic discrimination kit for *ITPA* polymorphisms (rs1127354 and rs7270101).

Results: CC and AA were the most prevalent genotypes of SNPs rs1127354 and rs7270101 respectively among two studied groups. In univariate analysis, we found that rs1127354 polymorphism was associated with Hb-decline at week 12 of treatment; this demonstrated the protective benefit of the minor allele A of rs1127354 against RBV-induced anemia at the week 12 of therapy. Ge¬notyping of ITPA rs1127354 and rs7270101 polymorphism would be ben¬eficial for predicting platelet decline during treatment. Patients with CC rs1127354 and AA rs7270101 were found to have a lower level of platelet decline.

Conclusion: It is concluded that minor allele A of rs1127354 plays a crucial role in protection against RBV-induced anemia. Genotyping of *ITPA* rs1127354 and rs7270101 polymorphism would be beneficial for predicting platelet decline during treatment with PEG-IFN plus RBV in Egyptian patients with chronic hepatitis C.

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Study of serum prolactin in primary immune thrombocytopenic patients

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Background: ITP is a disorder characterized by immune-mediated accelerated platelet destruction and suppressed platelet production. Hyperprolactinemia (HPRL) has been described in many autoimmune diseases such as systemic lupus erythematosus.

Aim: The aim of this work was to study serum prolactin (PRL) levels in patients with primary immune thrombocytopenia (ITP) and to investigate its possible correlation with disease activity and manifestations.

Patients & Methods: The study was carried out on 40 cases of primary ITP patients (group I) and 50 healthy controls (group II). PRL was measured directly in the serum samples by VIDAS PRL kits using the ELFA technique for all patients and controls.

Results: Moderate HPRL (serum PRL 30-200 ng/ml) was present in eight (20%) of primary ITP patients, but was not present in any of the 50 controls. Among 22 patients with platelet count below 30000/µl, eight (36.4%) patients had HPRL and 14 (63.6%) patients had normal PRL levels. HPRL was associated with lower platelet counts.

Conclusion: This study shows that HPRL is present in 20% of patients with primary ITP. Also, patients with HPRL have a lower platelet count than patients with normal PRL levels.

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Evaluation of the rate of hemolysis in blood samples taken from peripheral venous cannula vs. sampling with needle

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Introduction & Aim: Often in clinical practice, blood sampling for patients have to undergo repeated blood tests peripheral venous cannula (CVP) instead of the classical technique with needle or butterfly. The decision to withdraw blood from CVP can cause an alteration of blood values. This paper aims to assess whether blood samples taken from the CVP have an increased rate of hemolysis compared to those taken with classical technique, taking as reference the patient population under observation in the emergency department and make some reflections on the impact of this technique on the reading of the analytes.

Materials & Methods: Literature review was conducted from the databases PubMed, CINAHL, and Ovid, using keywords as: Peripheral catheter; blood specimen collection; blood sample and; hemolysis and, identified 19 items including two meta-analyses and a cross-sectional study.

Results: The meta-analysis of Heyer and Lippi agreed in declaring that the samples taken by needle have a lower risk of hemolysis. According to the work of Heyer, with the needle reduces the risk by 84% (RR=0.16 95% CI 0:11 to 0:24); according to Lippi, the levy to CVP increases by 7% the risk of hemolysis (RR 1.07 95% IC=1:06 to 1:08, p<0.001). Both declare the manual aspiration efficiency to reduce the risk of hemolysis comparing it with the use of vacuum tubes. According to Heyer, the risk reduces by 3% if you run a withdrawal from the CVP, vacuuming manually with syringe instead of vacuum tubes (RR=0.97, 95% CI 0.81-1.17); according to Lippi, sampling vacuum tubes involves a greater risk of hemolysis 32% of the samples (95% CI=1:24 to 1:40, p<0.001) compared with aspiration mode with a syringe or tube called S-Monovette blood tubes.

Conclusions: Withdrawals from CVP increase the risk of blood hemolysis.

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Alloimmunization in Egyptian children with transfusion-dependent B thalassemia: A major challenge

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Aim: B thalassemia is a common health issue in Egypt. However, few national studies were carried out to address the problem of alloimmunization and common alloantibodies in multi-transfused thalassemia patients. This study was designed to address those issues with the aim of optimizing the management in those patients.

Methods: The study included 281 multi-transfused B thalassemia Egyptian children from Delta region. Antibody screening and identification were carried out using column agglutination technology.

Results: 67 patients (23.8%) were found to have alloantibodies. Anti-kell and anti E were the most commonly encountered antibodies seen in 37.3% and 34.3% of patients, respectively. There was no significant difference in alloimmunization rate between males and females or between patients with thalassemia major and intermediate.

Conclusion: Alloimmunization is seen in nearly quarter of multi-transfused B thalassemia patients. Development of RBCs antibodies is multifactorial; however, a significant proportion of those can be prevented if pre-transfusion testing involved cross matching for the most immunogenic minor RBCs antigens. Although this would increase the upfront cost, the long term cost is likely to fall and is likely to improve patients' management.

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Association of xenobiotic metabolizing enzymes gene polymorphism with hepatocellular carcinoma in Egyptian patients

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Background & Aim: Xenobiotics are metabolized by a large number of metabolizing enzymes, genetic polymorphism of their genes are suggested as modifiers of cancer risk. The present study aimed to investigate the association between xenobiotic metabolizing enzymes [cytochrome P450 (CYP), N-acetyl transferase 2 (NAT2) and UDP-glucuronosyltransferase (UGT)] gene polymorphism with the risk of HCC in patients with chronic HCV-induced cirrhosis.

Methods: This study was performed on 354 subjects, divided into three groups, (group I: 150 hepatocellular carcinoma (HCC) patients, group II: 104 patients with HCV-related chronic liver disease (CLD) and group III: 100 apparently healthy control). The studied genes were genotyped using polymerase chain reaction-restriction fragment length polymorphism and allelic discrimination assays.

Results: Genetic polymorphic patterns of NAT2 (M1 and M3), CYP2D 6*6, CYP2D 6*4 and CYP2D 6*3 showed a significant difference in HCC group compared to other groups. NAT2 M2 slow acetylator, CYP2D6*6 and CYP2D6*3 poor metabolizers and CYP2D 6*4 rapid metabolizer were associated with increased HCC risk (OR: 1.23, 4.0, 3.32 and 2.3 respectively).

Conclusion: Increased risk for hepatocellular carcinoma in Egyptian patients infected with HCV may be associated with the genotypes: NAT2 (M2), CYP2D 6*6, CYP2D 6*4 and CYP2D6*3 and thus could help in tailoring individualized therapy and serve as potential target sites for chemotherapy.

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Isolated thrombocytopenia due to transient methimazole toxicity in acute ischemic liver failure

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Background: Methimazole is an anti-thyroid medication in the thioamide group that includes propylthiouracil and carbimazole. These medications are well known causes of agranulocytosis (0.1-0.5%). Other blood dyscrasias such as thrombocytopenia and aplastic anemia are rare. Liver dysfunction can interfere with hepatic metabolism of these drugs. We report a case of thrombocytopenia secondary to transiently-reduced hepatic metabolism of methimazole in a patient with temporary ischemic liver damage from cardiogenic shock.

Case Description: A 91-year-old male with history of ischemic cardiomyopathy, ESRD, and hyperthyroidism presented to the ED with vague abdominal pain. Medications included methimazole 5 mg every other day, aspirin, clopidogrel, erythropoietin with HD, and midodrine, which were all continued throughout the hospitalization. On exam, he was hypotensive with cold extremities and crackles. Echocardiogram revealed a decrease in ejection fraction from 50-55% to 5-10%. He was diagnosed with cardiogenic shock and started on dobutamine infusion. Prior to initiation of dobutamine, he had a transient episode of complete AV block causing marked hypotension. The following morning, his liver enzymes were markedly elevated, with AST 1009, ALT 1398, alkaline phosphatase 129, Total-bilirubin 1.69, INR 1.4. There were no physical exam findings of liver disease, and right-upper-quadrant ultrasound was unremarkable. These values gradually returned to normal over the course of a week. Initial platelet count was 131,000-dropping to 91,000 on the first day after hepatic injury. After a HIT score calculation of four, heparin prophylaxis was discontinued. A nadir of 26,000 was reached, with a gradual return to 133,000 that paralleled the recovery of liver enzymes. HIT antibodies were eventually negative.

Conclusion: This case highlights the importance of hepatic metabolism of methimazole and the potential for toxicity occurring secondary to acute liver injury. It is important to be cognizant of not only the well-described agranulocytosis, but also rare idiosyncratic reactions like thrombocytopenia.

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MYC/BCL2 double hit high grade B-cell lymphoma

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Double-hit lymphoma (DHL) has been defined by 2008 WHO as a B-cell lymphoma with MYC/8q24 rearrangement in combination with a translocation involving another gene, such as *BCL2* or *BCL6*. The most common form of DHL has translocations involving MYC and BCL2, also known as MYC/BCL2 DHL. In the past few years, numerous case series of MYC/BCL2 DHL have been reported in the literature. Most cases of MYC/BCL2 DHL morphologically resemble diffuse large B-cell lymphoma (DLBCL) or high grade B-cell lymphoma, not otherwise specified (previous name in 2008 WHO: B cell lymphoma, unclassifiable, with features intermediate between DLBCL and Burkitt lymphoma). These tumors have a germinal center B-cell immuno phenotype but an aggressive clinical course characterized by a high proliferation rate, advanced-stage disease, extra nodal involvement, high International Prognostic Index score and high serum lactate dehydrogenase levels. All tumors have a complex karyotype. Despite a variety of therapeutic approaches that have been used to date, patients with DHL have a poor prognosis. Here, we will discuss the clinicopathologic, immunophenotypic, cytogenetic and prognostic features of MYC/BCL2 DHL and some remaining issues.

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Intraoperative frozen section and imprint cytology of breast lesions: A comparative study

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Introduction: Frozen section is a vital technique used in diagnosis of breast lesions in agreement with imprint cytology. It helps surgeons to take an immediate therapeutic decision, possibly sparing the patient a second operation and reducing hospitalization cost. Frozen section in association imprint cytology has high degree of accuracy (varying from 94-98%).

Aim: Aim of this study is to evaluate usefulness of intraoperative frozen section for various breast lesions and to compare its diagnostic yield with that of imprint cytology and paraffin sections

Setting: All surgically operated breast lesions were submitted intraoperatively to the histopathology and cytology department, MGM Medical College and Hospital, Aurangabad during a period of July 2014 to June 2016 (23 months)

Subjects: 50 Indian female patients admitted to surgery ward at MGM Medical College and Hospital, Aurangabad because of breast lesion and who had subsequent excision of their breast lesion.

Materials & Method: Touch imprint cytology smears were made from cut surface of specimen submitted followed by staining with rapid PAP and subsequent frozen sections were made using Yorco Cryostat. The frozen sections were stained immediately with rapid H & E. Remaining specimens were submitted for gold standard paraffin sections.

Results: There were 35 benign and 15 malignant lesions. There were two cases of significant discrepancies between frozen section, imprint cytology and gold standard histopathology.

Conclusion: Our finding suggests that frozen section in agreement with imprint cytology gives correct diagnosis in 96% of cases examined. It is very useful in evaluating margins also. Imprint cytology is cost effective over frozen section. Frozen section has few demerits like freezing artifacts. Correlation with clinical, radiological and gross findings is necessary. Permanent paraffin sections however are still a gold standard.

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Vitamin D deficiency and its effect on hematopoietic stem cell transplant recipient

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Vitamin D plays an important role in calcium metabolism and homeostasis. In addition to its role in calcium metabolism, vitamin D plays an important role as immunomodulator. Vitamin D receptor (VDR) is expressed on many cells including T, B and natural killer (NK). Vitamin D modulates both innate and adaptive immune response. Recently, vitamin D deficiency is linked to cancer, autoimmune diseases and graft versus host disease (GVHD). This study investigated the effect of vitamin D deficiency in 104 children who underwent hematopoietic stem cell transplant (HSCT) from 2012 to 2015. Vitamin D level was measured prior to HSCT and serial measurements after HSCT on days 30, 60, 100 and 365 days. We observed that low vitamin level below 30 ng/ml is strongly associated with increased risk of relapse and decrease survival at day 100-post hematopoietic stem cell transplantation (HSCT) p=0.04. Also, we observed a strong correlation between low vitamin D level and infections including fungal and CMV reactivation post HSCT p=0.004. To conclude, vitamin D plays an important role as immunomodulator; its deficiency may impact the outcome of patient undergoing HSCT. Optimizing nutritional supplementation is very important before transplantation and continues after HSCT.

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Outcomes of newly diagnosed diffuse large B cell lymphoma treated with rituximab dose-adjusted EPOCH and rituximab-CHOP at King Chulalongkorn Memorial Hospital

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Background: Since the introduction of rituximab (R), outcome of diffuse large B cell lymphoma (DLBCL) has significantly improved. R-CHOP (C: Cyclophosphamide, H: Adriamycin, O: Vincristine and P: Prednisolone) has been the standard treatment over the past decade. However, about 30% of DLBCL relapsed or were refractory to the treatment. There were evidence showing benefit of adding etoposide (E) and administrating treatment in a dynamic dose adjusting fashion so called dose-adjusted (DA) EPOCH. Several phase II trials showed promising outcome of R-DA-EPOCH especially in some DLBCL subtypes such as primary mediastinal B cell lymphoma. We hypothesized that R-DA-EPOCH would be better than R-CHOP in DLBCL not otherwise specified (NOS). Herein, we compared treatment outcome of DLBCL patients treated with R-CHOP and R-DA-EPOCH at our institution.

Samples & Methods: We identified 178 newly diagnosed DLBCL-NOS patients treated with at least one cycle of R-CHOP or R-DA-EPOCH at the King Chulalongkorn Memorial Hospital between January 2011 and August 2016 (150 R-CHOP and 28 R-DA-EPOCH). We described baseline characteristics, treatment and compared toxicities including outcomes between R-CHOP and R-DA-EPOCH treated DLBCL patients.

Results: Baseline characteristics are summarized in table 1. R-DA-EPOCH treated patients were significantly older, had higher proportion of B symptoms, elevated LDH and high intermediate/high risk diseases. The overall response rate was similar between two groups (97.3% in R- CHOP vs. 92.9% in R-DA-EPOCH). At the time of analysis, 20 patients had died (15 R-CHOP and R-DA-EPOCH). With a median follow up duration of 32 months, 2-year progression free survival (PFS), overall survival (OS) for the entire cohort was 89% and 92.1% respectively. R-CHOP treated patients had similar PFS but marginally better OS than R-DA-EPOCH cohorts (90.2% vs. 80.9%, P=0.09 for PFS and 93.1% vs. 85.3%, P=0.05 for OS) (Figure 1). Subgroup analysis on 77 high-risk patients, PFS and OS were not different between R-CHOP and R-DA-EPOCH treated patients (Figure 2). R-DA-EPOCH had more grade III/IV hematological toxicities. Univariable analysis identified elevated LDH, advanced stage disease and HI/high IPI as significant risk factor of inferior survival. Cell of origin was not a predictive factor in our cohort but germinal center B cell (GCB) like DLBCL who received R-DA-EPOCH showed trend toward better survival. Using multiple variable cox proportional hazard analysis, HI/high IPI is the only independent factor of inferior survival.

Conclusions: In our study, DLBCL treated with R-DA-EPOCH had similar outcome to R-CHOP treated cohort. Whether R-DA-EPOCH would be more beneficial for specific subset, this finding may be re-evaluated in larger prospective controlled trial. Further analysis of CALGB 50303 is pending and would be informative.

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Efficacy and safety of ferric carboxymaltose in the treatment of iron deficiency anemia in women with benign gynaecological disorders

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The aim of the trial was to study the efficacy and safety of intravenous ferric carboxymaltose (FCM) in gynaecological patients with iron deficiency anemia (IDA) in terms of time of onset of response, improvement in haematological parameters, qualitative improvement in symptoms and adverse effects. A prospective observational study was conducted in a tertiary hospital for duration of one year. 30 gynaecological patients having IDA with Hb 6-8 g/dl and serum ferritin <15µg/L were given intravenous 1000 mg FCM over two weeks (500 mg X 2 infusions). Changes in haematological variables, improvement in clinical parameters and adverse effects were studied over a period of four weeks. At the end of study, Hb increment of ≥3 g% was seen in more than half of patients. Mean Hb increased to 10.14 g/dl from baseline value of 6.97 g/dl at the end of the study with only two infusions of FCM. MCV normalized in 43.33% of women on day 14 and in 100% of women on day 28. Mean serum ferritin increased from baseline value of 7.88 µg/L to 147.70 µg/L on day 28 reflecting replenishment of iron stores. Significant improvement in clinical parameters like fatigue, dyspnoea, palpitations was observed. Minor side effects like headache, dizziness and thrombophlebitis were observed in 13.33%, 10.00% and 6.67% women respectively. We concluded that intravenous FCM is effective, safe and convenient for treatment of IDA in gynaecological patients.

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A need for thrombotic thrombocytopenic purpura (TTP) specialist centers – providing better outcomes

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Thrombotic thrombocytopenic purpura (TTP) is heralded by its demanding presentation and impending mortality. The complex and life-threatening characteristics of TTP justify the need for early referral and responsive management in centers with comprehensive multi-disciplinary resources. In an era where compromise of patient safety or experience is unsatisfactory, the provision of specialist-led, organized care for this patient group remains overdue. Patients and clinical teams continue to lack the knowledge, support and resources required to achieve consistently high levels of clinical care. This forms the rationale for development of TTP Specialist Centers. Following an internal review the existing governance framework for managing patients at a tertiary referral hospital, it was confirmed that patients with suspected TTP were experiencing significant delays in diagnosis and treatment resulting in death. Acute service redesign led to the development of a regional TTP Specialist Centre facilitating acute coordinated care and centralization of resource and expertise. Tangible improvements in critical parameters were demonstrated including time to diagnosis, time to line insertion, time to plasma exchange and overall survival. Further understanding of how the evolution of TTP Specialist Centers diverges from an ad hoc approach to managing this vulnerable patient group offers promise in the translation to improved patient outcomes globally.

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Polycythemia rubra vera in patient with Gaucher disease

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Introduction: Gaucher disease (GD) is the most common genetic lysosomal storage disorder. It is an autosomal recessive disorder defined by the presence of two mutant alleles for the *acid-β-glucosidase* gene, located on region q21 of chromosome one. GD is caused by deficient activity of the enzyme acid-β-glucosidase and is specifically a disease in which macrophages become engorged, causing the liver and spleen to become enlarged and this results in dysfunction of these organs. GD symptoms are multi-systemic and can lead to death. Compared to the general population, GD patients have an increased risk of cancer in general (relative risk of 1.70) and multiple myeloma and hematological malignancies in particular (estimated risk between 25.0 and 51.1). Several factors have been hypothesized to play a role in the pathophysiology, splenectomy, immune dysregulation, altered iron metabolism, chronic inflammation and chronic B-cell stimulation, abnormalities of T cell function and aberrant polarization of macrophages to the alternatively activated phenotype. The Janus kinase 2 (JAK2) V617F mutation is known to provide a growth and survival advantage to the affected clones of hematopoietic cells. It may result in clinical phenotypes of polycythemia vera, essential thrombocythemia and primary myelofibrosis.

Case Report: Male patient (S.L) initially presented (1991) at the age of 33 years with mild anemia, thrombocytopenia and splenomegaly. Gaucher disease type 1 (GD1) was diagnosed based on the findings of Gaucher cells in the bone marrow. Clinically, he has remained well over a period of 19 years. From year 2010, he received Cerezyme replacement therapy. Five years later, he presented elevation of Hb, RBC and Hct. The possibility of JAK2 mutation was considered as the cause of raising the level of blood count. PCR-based assay with allele-specific primers confirmed the presence of the V617F mutation. The diagnosis of polycythemia rubra vera was established.

Conclusion: Testing for JAK2 V617F and other mutations associated with MPN may be useful for investigation of unexpected changes in patients with GD to confirm the cause when there are suggestive clinical features.

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PTEN status and Akt phosphorylation: Implications for the rituximab-resistance in B-cell lymphoma

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Rituximab has been widely used in clinical practice for the treatment of B-cell malignancies, but the majority of patients retreated with rituximab will eventually relapse with variable degrees of resistant disease. There is an urgent need to explore the mechanisms of resistance to rituximab in non–Hodgkin's lymphoma (NHL), and to develop therapeutic strategies to overcome resistance. Herein, we successfully set up three types of rituximab-resistant B lymphoma cell lines with different malignancy grade, and demonstrate that phosphatase and tensin homolog (PTEN) is low expressed in the rituximab-resistant cell lines. Furthermore, we report that reduced PTEN expression correlated with resistance to rituximab and inhibited tumor cell apoptosis through activation of Akt phosphorylation. Restoration of PTEN expression resulted in re-sensitization of resistant cells to rituximab through modulation of apoptosis by suppressing the p-Akt in the PI3K/Akt signaling pathway. Overall, our findings demonstrate a novel mechanism of rituximab-resistance by the involvement of PTEN status and Akt phosphorylation in three different types of rituximab-resistant B lymphoma cell lines, which may be new predictive markers for response to rituximab and provide new insights for reversing rituximab resistance in B-cell lymphoma.

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Understanding the epigenetic response in resistant cancer cells to romidepsin therapy

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The histone deacetylase inhibitor (HDACi) romidepsin has shown therapeutic potential in the treatment of peripheral and cutaneous T cell lymphoma although resistance to this novel therapeutic agent often develops. Multiple mechanisms of resistance to HDACis have been identified *in vitro*, but how this class of epigenetic inhibitors manipulates the epigenome and whether this is altered to cause development of tolerance in cancer cells has not been studied. Previous work in the department into HDACi resistance has identified candidate epigenetic genes, including HDAC8 and KDM5A, whose mRNA expression pattern is perturbed in response to HDACi treatment in multiple romidepsin resistant cell lines. However, whether these alterations in mRNA levels reflect protein expression and functional changes remains unclear. Using the CTCL cell line HuT78 and its romidepsin resistant counterpart (RHuT78), it was shown that both HDAC8 and the KDM5A protein expression are altered differently between the wild type and the resistant cell line upon treatment with romidepsin. Furthermore, by combining romidepsin treatment with the DNA methyltransferase inhibitor 5-azacytidine and inducing an apoptotic response in RHuT78 cells, the expression changes of HDAC8 and KDM5A could be transformed back to that seen in the parental HuT78 cell line. These results suggest that both HDAC8 and KDM5A may contribute towards defining resistant responses to HDACis and are therefore worthy for further study into potential therapeutic targets for inhibition to overcome resistance to romidepsin.

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Incompatible blood transfusion in autoimmune hemolytic anemia in an adult asymptomatic hepatitis B carrier: A case report

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Autoimmune hemolytic anemia is an uncommon condition caused by antibodies directed against red blood cells causing their premature destruction. Clinical manifestations include anemia, jaundice, splenomegaly, reticulocytosis, elevated serum bilirubin, and positive direct antiglobulin test. Autoimmune hemolytic anemia (AIHA) can either be idiopathic or secondary to an underlying disease process. Infection accounts for 5% of cases of secondary AIHA. AIHA in asymptomatic hepatitis B carrier is rare with only two cases reported worldwide. Both cases were pediatric patients. We presented with a case of a 27 year old male who came in due to anemia. Patient presented with the classic manifestation of AIHA and workup for underlying cause revealed a carrier state of hepatitis B infection. Patient was unresponsive to steroid and was persistently dyspneic and tachycardic. Blood transfusion with an incompatible blood was done which resolved the patient's symptoms. Steroid remains to be the mainstay of treatment for AIHA. However, blood transfusion may be beneficial to symptomatic patients at risk for complications of severe anemia. Although sustained remission is typical in inactive carriers of hepatitis B, reactivation remains a possibility, hence, patient education and good follow up is essential.

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A case report of POEMS syndrome: A diagnostic challenge

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Polyneuropathy, organomegaly, endocrinopathy, monoclonal gammopathy, and skin changes (POEMS) syndrome is a rare multi-organ disease that is characterized by polyneuropathy in the setting of plasma cell disorder. The pathogenesis of the syndrome is unknown but overproduction of vascular endothelial growth factor (VEGF) is said to be responsible for most of the symptoms. There is no standard treatment for POEMS syndrome; however, there are emerging therapies, including radiation therapy, alkylator based therapies, and corticosteroids, that have shown to be beneficial. We present a case of a 34-year-old woman who came in due to ascites associated with upper and lower extremity weakness, paresthesia, skin changes and polycythemia. Criteria for POEMS syndrome were fulfilled and serum electrophoresis revealed the presence of M protein, thus confirming the diagnosis. After treatment combination of prednisone and melphalan, the patient's clinical status improved markedly. High degree of clinical suspicion may significantly alter the course of the disease.

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