Management and Methods

This 3-year cross sectional study was performed in Dr. Sheikh Children’s Hospital in Mashhad on 50 children with ALL (n = 25) and NHL (n = 25). Half of them were received (n = 25) chemotherapy alone and half of them chemotherapy plus radiotherapy (n = 25). All children were in the remission phase. We assessed them by DEXA bone mineral densitometry (BMD) on the lumbar spine and femoral neck (hip). We also measured some bone biomarkers including calcium (Ca), phosphorus (P), parathormone (PTH), alkaline phosphatase (ALP) in plasma. Results by age, height, sex and Body Mass Index (BMI) were adjusted with a special software.

Results Mean age was 8.28 ± 3.93 years. There was no significant difference on bone biomarkers (Ca, P, ALP, PTH) between ALL, NHL and also between the two treatment groups. Children with ALL had lower density at the hip and lumbar spine. (respectively p value < 0.001 and p value = 0.018). A total of 50 patients, the hip BMD showed normal results in 3 patients (6%), in 14 patients (28%) osteopenia were seen and 33 patients (66%) had osteoporosis. In whom received radiotherapy plus chemotherapy, one patient had normal BMD and 24 patients (48% of total patients) at the hip and 22 patients (44%) at lumbar spine had decreased BMD. In contrast, in whom had only chemotherapy, 24 patients (48%) had osteoporosis at hip and 23 (46%) at the lumbar spine. There was no significant difference in BMD between the sexes.

Conclusion Given that 94% of children had abnormal bone density, seem to pay more attention to the metabolic status and BMD in children with cancer can develop appropriate strategies to improve health and quality of their life.
Children’s Hospital in Skopje. We explored the characteristics of I.E., together with the causative pathogens, the episodes of febrile neutropenia (FN), the length of antibiotic treatments and the treatments with G-CSF during intensive phases of treatment (Protocol I, M and II).

**Results** From 55 analysed records 24 (43.64%) were male and 31 (56.36%) were female. Mean age at diagnosis was 6.0 years (1.1–15.0). Majority of the patients 43 (78%) were under 10 years and 12 (22%) were over 10 years. All of them experienced 132, 52 and 73 I. E. with 2.4, 0.9, and 1.3 infections per patient during Protocol I, M and II respectively. Regarding to the pathogens 184 (71.5%) were bacterial (102, 30 and 52 in Protocol I, M and II), 45 (17.5%) were viral (20, 14 and 11 in Protocol I, M and II) and 28 (10.8%) were fungal (10, 8, 10 in the three intensive phases respectively). There was a slight predominance of gram positive bacteria in Protocol I (Gram positive 42 (51.85%) versus gram negative 34 (41.97%)), and a very slight predominance of gram negative bacteria in Protocol II (Gram positive 16 (45.71%) versus Gram negative 18 (51.42%)). The infections were treated with antibiotic treatment in average of 23.69, 11 and 15.05 days and the number of treatments with G-CSF were in average 7.22, 4.94 and 9.20 per patient respectively in Protocol I, M and II. The number of episodes of FN in these three phases was 16.4 (29.1%), 4 (7.3%) and 22 (40%).

**Summary/conclusion** Evaluation of the characteristics of I. E. presented that the majority of infectious events were observed in Protocol I and also the length of antibiotic treatment was longer in this phase. But the episodes of FN could not be performed because there was no specific software. The results suggest that deferasirox is effective in lowering iron burden, it is well tolerated and has a low potential for toxicity. Long term therapy will be needed to assess the benefits on iron balance and organ damage in chronically transfused patients with thalassaemia major.

**Poster abstracts**

**PO-0161** TREATMENT OF IRON OVERLOAD WITH DEFERASIROX IN THE PATIENTS WITH THALASSAEMIA MAJOR

K. Martinova,1 B Coneska-Jovanova,1 S Kancheva,1 A Jovanovska,1 E Bojadgieva.1

1 Hematology and Oncology, University Children’s Hospital, Skopje, Macedonia; 1 University Goce Delcev, Faculty of Medical Sciences, Stip, Macedonia

**Background** Iron chelation is an important component of management of transfusion-dependent patients with thalassaemia major. Deferasirox is a relatively new oral iron chelator (US FDA approved in 2005) with the limited experience in children. **Aims** To present our experience with deferasirox in patients with thalassaemia major (TM) in the context of: effects on serum ferritin level in chronically transfused patients with thalassaemia major, side effects and patients tolerance to the drug and effects on serum creatinin and liver transaminases. **Methods** Four patients with TM with mean age of 3.1 years (range 2.5–3.5) were included in the study. Mean follow up was 37 months (range 29–42). The disease was diagnosed in early childhood (during the first year of life) with the following signs and symptoms: extreme pallor, jaundice, failure to thrive, poor feeding, irritability, decreased activity and hepatosplenomegaly. Regular blood transfusions were applied to treat chronic hemoletic anaemia. **Results** The mean serum ferritin (SF) at diagnosis was 471.3 ± 284.4 (range 153–706), and at the start of the treatment with deferasirox 6281 ± 9183.9 (range 767–20000). The number of blood transfusions before the treatment was around 28.3 ± 15.5 units (range 17–46), or about 679.3 ± 608.14 (range 220–1369) ml/kg body weight. Deferasirox was given seven days a week at a dose of 20 mg/kg body weight. The primary outcome variable was SF level at the start and at the end of the study. Echocardiography was made in all patients and it was normal. MRI-T2* could not be performed because there was no specific software. The level of SF at the end of the study period was 1862 ± 1312.15 (range 637–3710). Patients were monitored for hepatic and renal toxicity, visual or auditory changes and development of new symptoms. Adverse events were very mild gastrointestinal symptoms in 1 patient and no adverse events in the remaining 3 patients. Elevation of serum creatinin or hepatic transaminases was not observed in any subject. One patient interrupted the therapy as there was a marked fall in SF < 500 ng/L at the end of the therapy. The treatment was well tolerated; suspension of therapy was not required owing to toxicity. **Summary/conclusion** The results suggest that deferasirox is effective in lowering iron burden, it is well tolerated and has a low potential for toxicity. Long term therapy will be needed to assess the benefits on iron balance and organ damage in chronically transfused patients with thalassaemia major.

**PO-0162** CLINICAL PROFILE AND OUTCOME OF CHILDREN WITH ANAPLASTIC LARGE CELL LYMPHOMA

1. Mathew,2 D Boddu,2 R John,3 N Chaudhry,3 M Therés.1 Child Health, Christian Medical College Hospital, Vellore, India; 2Pathology, Christian Medical College Hospital, Vellore, India

**Background** Anaplastic large cell lymphoma (ALCL) in children is usually ALK positive and is characterised by advanced disease at presentation with a high incidence of extra nodal involvement. We present the clinical profile, treatment and outcome of a small cohort of children with ALCL treated at our centre between January 2004 and June 2013. **Results** 19 children, 14 boys and 5 girls, aged 18 months to 14 years, with ALCL. 16/19 had lymphadenopathy and 14/19 had fever. Thirteen had high risk, 5 had standard risk and one had low risk disease. 16/19 ALK positive. 17/19 were treated according to the NHL-BFM 90 protocol. Fourteen completed treatment. Three died during treatment; 2 due to infection and 1 had progressive disease. All 3 had high risk disease and were ALK positive. All the three children with ALK negative disease relapsed; one died on relapse treatment, another was lost to follow up a year after completion of relapse therapy and the third having primary cutaneous disease, is alive and well. Of the 11 ALK positive children who completed treatment, only one relapsed and died. The remaining 10 are alive and well with a mean follow up of 17 months (range 8–93 months). **Conclusion** The majority of our patients are ALK positive and have high risk disease at presentation. 55% of children with high risk disease are alive and well after a mean follow up of 17 months. The overall survival was 65% and event free survival 58% at the time of this analysis.

**PO-0163** EFFECT OF NUTRITION WITH FOLLOW-UP FORMULA FROM 6TH MONTH OF AGE ON THE COMPLETE BLOOD COUNT AND IRON LEVELS OF INFANTS (PRELIMINARY TRIAL)

H Apak, N Ozdemir, G Tuyusz, B Katlabay, E Erginoz, M Kucur. Pediatric Hematology, Cerrahpasa Medical Faculty University of Istanbul, Istanbul, Turkey

**Background** Development of methods that can improve iron status of iron-deficient infants (IDIs) who are exclusively breastfed is important. The main objective of this study was to evaluate the effects of nutritional iron supplement with follow-up formula (FF) on the complete blood count (CBC) and iron levels of babies from 6th month of age. **Methods** This prospective, controlled, randomized, clinical trial was done in 2014 in 2 pediatric clinics in Istanbul (Turkey). 60 Iron-deficient breastfed infants (6–12 months) were included. The children were randomised into 2 groups. The intervention group received follow-up formula containing 1 mg of iron per 100 ml starting at 6th month to 12th month, while the control group remained on the usual infant formula without iron. 36 children completed the study. **Results** Group A received follow-up formula at 6th month of age. The results showed statistically significant increase in haemoglobin, total iron-binding capacity, ferritin and transferrin saturation levels from 6th month to 12th month. At 12th month of age, the haemoglobin level in group A was significantly higher than in control group B (8% vs 5%). The difference was statistically significant (P<0.04). Mean ferritin levels at 6th month were 78.91 ± 55.33 µg/L in group A and 68.6 ± 43.73 µg/L in group B (P<0.04). At 12th month, mean ferritin levels were 194.81 ± 73.56 µg/L in group A and 100.48 ± 35.68 µg/L in group B (P<0.04). There were statistically significant increases in iron status parameters in group A from 6th to 12th month. **Conclusion** This study suggests that follow-up formula contains significant amounts of iron and has potential to improve iron status of IDIs.