Material 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 include 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.

Poster abstracts

PO-0158 MANAGEMENT OF PATIENTS WITH ALL WHEN EXPOSED TO VZV
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Aims Investigate the management of patients with ALL when exposed to Varicella Zoster Virus.

Method Retrospective study looking at all patients diagnosed with ALL between 2007–2011, a total of 60 patients. Each chart was looked at for any documented exposure to varicella and the management of the patient compared to standards set on local guidelines.

Results 58 patients in the audit. Age range was from 2 years to 15 years. 48 patients were tested at diagnosis leaving 10 patients with unknown Varicella status diagnosis.

24 patients reported exposure, 50% of these patient exposures were significant and required treatment. 19 of these were managed appropriately and 5 were not. 100% patients that were exposed and found not to be significant exposures did not receive treatment and therefore were managed appropriately. Of the patients that were exposed and not managed according to local guidance, one patient received IVIG 2/52 after a significant exposure when according to guidance they should have received oral aciclovir. Another patient did not have their status checked at diagnosis or when exposed. The remaining three patients did not have their immune status checked at diagnosis making their management inappropriate.

Conclusion Overall the management of the patients who contacted the medical team to report exposure to Varicella were managed appropriately. Plan is to have a sticker on the front of patient notes with varicella status on diagnosis, exposure and results.
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, 2.44 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. was performed in the context of: effects on serum creatinin and liver transaminases. Deferasirox is a relatively new oral iron chelator (US FDA approved in 2005) with the limited experience in children. 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 hemolytic anaemia.

**Results** The mean serum ferritin (SF) at diagnosis was 471.3 ± 284.4 (range 155–706), 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.

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**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 with primary curative 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.

**Poster abstracts**