Conclusion This study shows that adolescents are at significant risk of allergic reactions, uncontrolled asthma and recurrent food reactions prior to review by a specialist allergist. 10/17 (59%) had a reaction while on the WL. Three cases were anaphylaxis. This study has prompted design of a specific information leaflet for GPs referring adolescents to the allergy clinic as well as review of criteria for urgent review in clinic.

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GP7

IMPACT OF A SYSTEMATIC RISK BASED ULTRASOUND SCREENING PROGRAM ON OPEN SURGERY RATE IN NEWBORNS WITH DEVELOPMENTAL DYSPLASIA OF THE HIP

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Introduction Early detection of DDH can reduce the surgical morbidity in children. A risk based ultrasound (US) screening criteria was introduced which was audited to assess its impact on open surgical rate.

Methodology All newborns born in the years 2014–2016 referred to the screening US service were included in the study. Screening criteria included breech presentation, Maternal/1stdegree relative History of DDH and Abnormal Clinical Exam. All newborns were investigated and treated with a standardized algorithm. A Comparison group of newborns referred in 2011–2013 was used. Referrals for surgical opinion were done based on abnormal clinical or radiographic findings.

Results 494 newborns 6 weeks or younger were referred in screening group. 268 Patients were treated in harness. 42 were referred for surgical opinion. 17 required surgical treatment. 12 required EUA and arthrogram, 8 closed reduction, 11 pelvic osteotomy, 1 femoral osteotomy and 7 are currently being observed. In comparison prior to screening between 2011–2013 only 81 newborns 6 weeks or younger were referred of which 27 patients required open surgery.

Conclusion There was a significant increase in outpatient but not surgical burden due to introduction of screening criteria. There was a marked improvement in early referrals.

GP8

ASSESSMENT OF NEW POTENTIAL BIOMARKERS OF INFLAMMATION IN CHILDREN WITH COW'S MILK ALLERGY

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Introduction Cow's milk allergy (CMA) is a frequent food allergy in young children. In some children allergy symptoms persist for many years, that is why searching for markers allowing to follow the dynamics of the inflammatory process is still underway. Currently, routinely determined parameters have a limited value in this disease and do not fully reflect all the mechanisms of the inflammatory process. The measurement of proinflammatory factors of various origins may be helpful in both diagnosis and monitoring the effectiveness of treatment in the children with CMA.

The aim of the study was to assess serum concentrations of C-reactive protein (CRP), interleukins (IL-6, IL-10) and tumor necrosis factor- α (TNF- α) in the patients with cow's milk allergy and in the healthy children.

Patients and methods The study included 20 children (aged 3–6 years) with diagnosed cow's milk allergy, who were under systematic medical and dietary control at the Institute of Mother and Child (Warsaw, Poland). Patients had been treated with elimination diet, providing a milk substitute: extensively hydrolyzed formulas (54%) and soy-based formulas (46%). Children with cow's milk allergy had different initial symptoms: atopic dermatitis, gastrointestinal symptoms, and recurrent respiratory tract infections. The control group consisted of 15 healthy children matched for age and sex.

Anthropometric measurement and dietary constituents were assessed in all studied children. Concentrations of serum CRP, IL-6, IL-10, and TNF- α were determined in serum samples by immunoassays. Statistical analyses were done using Statistica software. This study was approved by the Ethics Committee at the Institute of Mother and Child.

Results There were no significant differences in the anthropometric parameters: weight, height and body mass index in both studied groups. Average daily dietary energy and macronutrients (protein, fat, carbohydrates) intake was similar in the children with cow's milk allergy and the controls. No significant difference in serum CRP and IL-6 concentrations between the two groups of children was found. Median value of serum IL-10 and TNF- α were significantly higher ($p < 0.05$) in the children with CMA than in the healthy children: 2.10 (1.85–3.21) vs. 1.54 (1.01–2.01) pg/mL and 12.84 (9.49–14.6) vs. 10.52 (6.94–13.21) pg/mL, respectively.

Conclusion Our data allow us to suggest that IL-10 and TNF- α may be a promising biomarkers in the assessment of inflammation in the patients with cow's milk allergy.

GP9

SKULL X-RAYS IN THE DIAGNOSIS OF ABNORMAL SKULL SHAPES

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Introduction Differentiation between plagiocephaly and craniosynostosis continues to provide a challenge for the clinician. Historically, initial investigations would have included a skull x-ray. However, it is widely accepted that this investigation is difficult to interpret and its value in diagnosis of craniosynostosis is debated. Aside from creating the burden of additional investigations, it also exposes children to ionising radiation.

Aim and Objectives Examine the correlation between reported skull x-rays and clinical diagnosis of craniosynostosis to

establish their diagnostic value and value in management of abnormal skull shape.

Methods Retrospective chart review conducted as a 2 part study in children who were referred with a skull x-ray.

Part A: Referrals of abnormal skull shapes to the National Pediatric Craniofacial Center (NPCC), Temple Street Children's Hospital, between 1st January 2015 and 30th May 2017

Part B: Children who underwent surgery for a confirmed craniosynostosis between 1st January 2011 - 25th October 2017.

Results and Findings Part A: 300 children were referred with 59 skull x-rays. This represented 20% of all patients referred during the time period. Of these 44 (75%) were found to be a match with 15 (25%) not matching the final clinical diagnosis.

Part B: 274 children underwent surgery for a confirmed craniosynostosis between 1st January 2011 - 25th October 2017. 63 pts had skull x-rays on referral- this represents 23% of all operated children in the time period. Of these 41 (63%) were found to be a match with 17 (29%) not matching the final clinical diagnosis. 5 (8%) were inconclusive.

Conclusions Part A: In 25% of the children referred to the NPCC with abnormal skull shape, their clinical diagnosis did not match their x-ray report. As such, skull x-rays did not contribute to their management.

Part B: In 35% of children who underwent surgery for craniosynostosis, their clinical diagnosis did not match their radiological diagnosis.

In the remaining children who had a skull x-ray performed and underwent surgery for craniosynostosis, the majority (88%) had a subtype of craniosynostosis which our clinical team who feel confident to diagnosis clinically without imaging.

As such, it can be said that in 92% of children who underwent surgery at the NPCC the x-ray did not contribute to their management.

We recommend clinicians should check with the NPCC with respect to the protocol for x-rays where craniosynostosis is suspected as in most cases the diagnosis is clinically obvious to the craniofacial surgeon.

GP10

CHRONIC NONBACTERIAL OSTEOMYELITIS; THE IRISH EXPERIENCE

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Background Chronic nonbacterial osteomyelitis (CNO) is a rare autoinflammatory disease affecting bone with an estimated prevalence of 1 in 10⁵. Untreated CNO can result in complications such as vertebral compression fractures and leg length discrepancy. Limited data on different clinical phenotypes and efficacy of treatments (such as NSAIDs, steroids, methotrexate, bisphosphonates and biologic agents) makes prognosis challenging.

Objectives To describe the clinical phenotype of an Irish cohort of patients with CNO including treatment response.

Methods Retrospective chart review of current patients attending the National Centre for Paediatric Rheumatology and the

Rheumatology Department in the Children's University Hospital. Clinical charts, radiology and histology reports were reviewed. All data was coded and statistical analysis was performed in R.

Results Clinical charts of 37 patients with CNO were reviewed. The median age at onset was 8.5 years, median follow-up was 3 years and the median number of sites 3 (1-21). F:M was 2.7:1. 94% had multifocal disease. 35% had a personal history of an associated disease such as psoriasis, inflammatory arthritis or inflammatory bowel disease. A first- or second-degree family history of an associated disease was present in 54%. All patients underwent whole-body MRI prior to diagnosis. All patients with unifocal disease underwent biopsy to rule out infection or malignancy.

Treatment escalation beyond NSAIDs was required in 51% with biologic agents being used in 84% of those requiring second-line treatment. The indications for second-line treatment were in keeping with recent CARRA guidelines; persistent active disease on NSAIDs (n=12), the presence of spinal lesions (n=5), the presence of a physal lesion (n=1) and pre-existing JIA (n=1). Biologic agents led to symptomatic improvement in all patients while none of the patients in this cohort responded to bisphosphonates; response to methotrexate was variable.

Conclusions There was a low incidence of unifocal disease and a high incidence of either a personal or family history of associated diseases in this cohort. Those with unifocal disease were less likely to have an associated inflammatory disease or to require second-line treatment. The rate of progression to biologic treatment was higher than that reported most other cohorts. Multinational collaborative consistent data collection with clearly defined outcomes is required to ascertain the association between different CNO phenotypes and outcomes.

GP11

EFFICACY OF SOFT TISSUE SURGERY FOR FLEXION KNEE CONTRACTURES IN CHILDREN WITH CEREBRAL PALSY

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Aim of the Study To assess the results of concomitant hamstring lengthening and plication of the patellar tendon.

Methods Retrospective data of 38 patients (72 knees), 27 boys (71%) and 11 girls (29%), with flexion knee contractures due to cerebral palsy who were treated from 2012 to 2018 were reviewed. Average patient age was 9.8 (SD=2) years (range, 7 - 12 years). The degree of knee contracture, ambulatory status (using the Gillette Functional Assessment Questionnaire (Gillette FAQ) 10-point scale) were evaluated before surgery and after rehabilitation period. The follow-up period ranged from 6 months to 6 years. 24 Patients (42 knees), 11 boys (46%), 13 girls (54%) with a diagnosis of one lower limb shortening due to hemihypoplasia, Legg-Calve-Perthes disease or tumor mass in metaphysis, without a diagnosis of cerebral palsy, were assigned to reference group to determine normal range of knee extension in children 7-12 years old. Average patient age in this group was 10.6 (SD=2, range, 7 - 12) years. In the routine practice, all children of the reference group underwent CT-scan of the lower