

Fourth Arab Society for Pediatric Endocrinology and Diabetes (ASPED) - European Society of Paediatric Endocrinology (ESPE) School, 14-17th Dec. 2017, Abu Dhabi, United Arab Emirates

Rasha Hamza¹, Asma Deeb^{2*} and Abdelhadi Habeb³

- 1 Department of Paediatric Endocrinology, Ain Shams University, Cairo, Egypt
- 2 Department of Paediatric Endocrinology, Mafraq Hospital, Abu Dhabi, UAE
- 3 Department of Pediatrics, Prince Mohamed bin Abdulaziz Hospital, NGHHA, Madinah, KSA

Abstract

The fourth ASPED-ESPE school was held between 14-17/12/ 2017 in Abu Dhabi, UAE. The school was run by a combined ASPED- ESPE faculty and sponsored by an educational grant from Novo Nordisk, UAE. It was advertised in ASPED and ESPE websites and candidates were selected through open competitive applications based on strict enrollment criteria by the steering committee. Of the 89 applicants, 61 candidates from 15 Arab countries were selected. The curriculum covered major paediatric endocrine topics and was delivered in a mixture of didactic/case based plenary lectures, debate, and interactive group discussion. In addition, small group discussions were run in 4 parallel groups, in which over 50 cases and research projects were presented. The social program included Gala dinner and visiting the impressive Louvre Abu Dhabi museum. The feedback evaluation by candidates showed a satisfactory response to organization, scientific value and opportunity for networking and future collaboration.

*Corresponding author: Asma Deeb

Department of Paediatric Endocrinology,
Mafraq Hospital, Abu Dhabi, UAE.

✉ adeeb@seha.ae

Tel: +97125011111

Fax: +97125821549

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Introduction

The Arab Society for Pediatric Endocrinology and Diabetes (ASPED)

ASPED is a non-profit scientific organization launched in September 2012 upon the initiative of a group of Pediatric Endocrinologists from the Arab countries extending from the Gulf through North Africa. The society is registered under the Dubai Association Center (DAC), License number DAC-0001. Its main aim is to ensure a high standard of care and development in the field of pediatric endocrinology and diabetes in the Arab region. Although ASPED is a relatively young society, it is now well recognized among the world societies in the field with strong links with large organizations such European Society of Paediatric Endocrinology (ESPE) and international society for pediatric and adolescent diabetes (ISPAD). In 2017, ASPED moved step further to be a member of the International Consortium for Paediatric Endocrinology (ICPE).

The ASPED-ESPE school

The ASPED-ESPE school is an initiative by ASPED in collaboration

with the ESPE. The first school was conducted in 2014 in Abu Dhabi, UAE. It is an annual event primarily aimed at updating the knowledge of young physicians involved in care of children and adolescents with diabetes and other endocrinopathies in Arab countries. It also encourages brainstorming and sharing experience and initiative about research ideas and scientific collaboration. The school provides an opportunity for delegates to establish links and networking between each other and to interact with senior ASPED and ESPE faculty members.

The school adapts the format of an intensive course in basic and clinical science of acute and chronic disorders in paediatric endocrinology and diabetes. The school rules are set by a steering committee (SC) which consists of five senior paediatric endocrinologists from ASPED and ESPE. The essential and desirable criteria's for eligibility and enrollment are set by the school SC and the selection is based on open competition following an advertisement in the ESPE and ASPED websites. The curriculum is delivered by a faculty consisting of SC members and

other senior ESPE and ASPED members. The ASPES-ESPE school is sponsored exclusively by an educational grant from Novo Nordisk, UAE according to the rules and regulations of the ASPED and ESPE.

The Fourth ASPED-ESPE school

The 4th ASPED-ESPE school was held at the Crown Plaza hotel, Yas Island, Abu Dhabi, UAE. The school started Thursday afternoon 14/12/2017 and finished lunch time on Saturday 17/12/2017. It was preceded by the first MENA ASPED FITTER meeting during 13-14/12/2017, which covered practical aspects of diabetes management and was attended by all delegates. With highly educational curriculum and prominent international and regional speakers, the school attracted 89 applicants from 15 countries. Of these 61 participants were selected from United Arab Emirates, Kingdom of Saudi Arabia, Egypt, Kuwait, Iraq, Algeria, Sudan, Palestine, Oman, Qatar, Bahrain, Libya, Tunisia, Lebanon and Jordan.

Curriculum and format

The school covered various Paediatric Endocrinology topics including: growth, puberty, thyroid disorders, disorders of sex development, and diabetes. The curriculum was delivered via didactic lectures, clinical case-based faculty presentations, debates, small group discussion, case presentations and research projects presentation by delegates. Six plenary lectures were delivered by senior endocrinologists from ESPE and ASPED, 11 case-based faculty presentation, 16 selected plenary case/project presentations by delegates. In addition, over 50 complex/interesting cases and research projects were presented by candidates in 4 parallel groups providing excellent opportunity for interactive discussion.

Scientific and social linking

The school enabled participants to meet and link up with senior researchers, clinical experts and fellow clinicians in a collegial environment encouraging active discussions and exchange of ideas. In addition to the high scientific level, the social interaction between the school faculty and candidates was remarkable. The social program included Gala dinner and visiting various local monuments including the impressive Louvre Abu Dhabi museum.

Feedback

The feedback evaluation was collected from delegates and showed satisfactory response to organization, scientific value and opportunity for networking and future collaboration.

Faculty Abstracts

Molecular genetic applications in paediatric endocrinology

Jan Labl, Department of Paediatrics, 2nd Faculty of Medicine, Charles University and University Hospital Motol, Prague, Czech Republic

Human genome consists of nearly 21,000 functional genes that are located on 23 chromosome pairs. Of these genes,

several hundred are relevant for paediatric endocrinology –for hormonal regulations, growth, development and maturation. Their pathogenic variants may cause monogenic conditions that are mostly classified as “rare diseases”. Genetic studies within the past two decades helped understanding the genotype-phenotype link and thus elucidated the pathophysiology of numerous endocrine conditions. Quite recently, the techniques of next generation sequencing further facilitated the outbreak of new genetic discoveries. However, genetic testing is rarely required to confirm clinical diagnosis in daily routine. On the opposite – genetic discoveries led to more precise understanding of clinical presentation of the disease and facilitated the clinical recognition of rare conditions.

Genes encode proteins – both functional and structural. The proteins relevant for paediatric endocrinology include enzymes, proteohormones, hormonal receptors, structural molecules of the cell membrane, cell organelles and extracellular matrix, cellular channels, regulatory (signalling) molecules, transcription factors, and others.

Monogenic conditions follow the Mendelian modes of inheritance. They include autosomal recessive, autosomal dominant and X-linked conditions. Most of endocrine and metabolic conditions follow the autosomal recessive mode of inheritance. They are rare in most populations and are more prevalent in areas with high level of consanguinity. Single conditions tend to prevail in distinct populations due to a founder effect. Autosomal dominant conditions are compatible with long-term survival and fertility. They follow the “vertical” mode of inheritance but some affected individuals have *de novo* mutations. Autosomal dominant conditions include e.g. all subtypes of MODY diabetes, Marfan syndrome, Noonan syndrome and other “RASopathies”, neurofibromatosis (von Recklinghausen disease), achondroplasia, and some forms of familiar short stature. X-linked conditions follow a specific pattern of inheritance with affected males (hemizygotes). The pedigree is characteristic by affected boys, their male siblings and maternal uncles. Endocrine X-linked conditions including X-linked adrenoleukodystrophy, adrenal hypoplasia congenita, Simpson-Golabi-Behmel syndrome, and IPEX syndrome. In clinical praxis, genetic testing may confirm the diagnosis (suggested upon clinical suspicion), predict further disease outcome (but is rarely superior to clinical diagnosis), and facilitate treatment decisions. It allows genetic counselling among relatives and prenatal testing in future pregnancies. In addition, every genetic diagnostic confirmation increases medical knowledge and understanding.

Practical problems of steroid withdrawal and coverage during stress

Mohamed A Abdullah, Pediatric Endocrinology Department, Faculty of Medicine, University of Khartoum, Sudan

The process of withdrawing patients from chronic glucocorticoid therapy must be performed carefully to prevent exacerbation of the primary disease and development of symptoms of adrenal insufficiency including acute adrenal crisis. Unfortunately, up to date there are no evidence-based recommendations, but many

societies have published some guidelines mostly for adults. This is particularly so for topical steroids which have been shown to suppress the hypothalamic-pituitary-adrenal axis depending on the potency, dose, duration of therapy and others. In this presentation we are going to present some of these cases and have an interactive session and see how people handle these cases and come out with some practical recommendations based on people's experience and published literature.

A masquerading case of precocious puberty: what lies behind the wall?

Rasha Tarif Hamza, Paediatric Endocrinology Department, Ain Shams University, Cairo, Egypt

Short stature, gonadal dysgenesis and infertility are the main clinical features in Turner Syndrome (TS). Mosaic TS karyotype occurs in approximately 30% of patients with TS with only 1% showing a 45 X0/47XXX mosaicism. Girls with mosaic TS who have a normal cell line, or an extra X chromosome tend to exhibit milder phenotypes. Few rare cases of precocious puberty have been described as an atypical feature in girls with mosaic TS. We report a 6.5-year-old girl presenting with dysmorphic features, behavioral problems, scoliosis, pectus excavatum and global developmental delay. She experienced vaginal bleeding once, her height was on +0.12SD and she was in Tanner breast stage 3. GnRH stimulation test revealed a high FSH, LH and estradiol. Her bone age was consistent with 11 years and karyotype revealed 45, X0/47, XXX chromosomal constitution. In conclusion, precocious puberty may occur in TS girls when dosage compensation by the cell line with more than two X chromosomes allows normal ovarian function. Treatment with growth hormone and GnRH analogue is controversial in such cases and the response is unpredictable.

Delayed puberty

Rasah Odeh, Department of Pediatrics, Pediatric Endocrinology Unit, School of Medicine, University of Jordan

Delayed puberty is defined when puberty has not started at a chronological age > 2 standard deviation of average maturers. This translates to females not achieving Tanner stage B2 by 13 years of age and boys not entering Tanner stage G2 by 14 years. The single most common cause of pubertal delay in boys and girls is constitutional delay of growth and puberty (CDGP). However, CDGP is a diagnosis of exclusion, and other etiologies must be considered, especially in girls in whom CDGP is less common. Causes of delayed puberty are divided broadly into 3 categories: hypergonadotropic hypogonadism, permanent hypogonadotropic hypogonadism and functional hypogonadotropic hypogonadism. In this presentation, a controversial case will be the platform to navigate through these categories and show the clinical approach to delayed puberty diagnosis and management.

Updates in thyroid diseases

Bessie Spiliotis, Division of Paediatric Endocrinology and Diabetes, Department of Pediatrics, University of Patras, Greece

Thyroid diseases in the infant, child and adolescent can many times

be the cause of multiple disorders such as learning disabilities, stunted growth, delayed or precocious pubertal development and childhood obesity. It is well known that thyroxine is essential for the normal development of crucial target tissues such as the brain and bones.

During the first two years of life, thyroxine plays a major role in the development of crucial neurons which are limited to a specific window of time. Even a short time of thyroxine deficiency during this period can cause irreversible brain damage. Over the years though, the definition of congenital hypothyroidism based on the levels of TSH and Free T-4 have changed as new research has shown that in the past higher levels of TSH and lower levels of FT-4, which were considered normal, were misleading and allowed infants to develop into children with learning disabilities. Also, for many years it was thought that maternal thyroxine did not pass the placenta and that it did not play a role in the development of the baby's brain. New research findings though, showed that the small amount of maternal thyroxine that passes the placenta is transformed immediately into FT-4 that is essential for the normal development of the brain of the embryo, especially if the embryo has thyroid dysfunction or dysgenesis. Finally, new insights concerning the genetic causes of congenital hypothyroidism have helped track long-term consequences of congenital hypothyroidism that can be avoided with proper thyroxine treatment.

Debate: Growth hormone stimulation testis essential before GH therapy: For

Bassam Bin-Abbas, Pediatric Department, King Faisal Specialist Hospital and Research Centre, Riyadh, KSA

The diagnosis of growth hormone deficiency (GHD) in childhood is challenging, in large part because of the lack of a true gold standard and the relatively poor performance of available diagnostic testing. GHD remains a diagnosis principally based around the history, clinical features and auxology supported by biochemical and neuroradiological studies. Problems continue to exist with GH and IGF-I assays for standardization, reproducibility and inter-assay variability. There are also problems with variability and reproducibility of the pharmacological stimulation tests. In this debate, we will discuss the recommendations for the diagnosis and management of growth disorders published by the Gulf Cooperation Council Countries (GCC) Pediatric Endocrine Group and we will review the consensus guidelines outlined by the European Society of Pediatric Endocrinology (ESPE) and Growth Hormone Research Society (GHRS).

Debate: Growth hormone stimulation testis essential before GH therapy: Against

Walid Kaplan, Twam Hospital, Al-Ain, UAE

Abstract not available.

Growth Controversial Cases I

Hala Alsheikh, Muscat Private Hospital, Muscat, Oman

After years of using GH for augmentation of height in children, we still face challenging cases of short stature for which the decision

to use GH is controversial. Here are 3 case reports of children with short stature given GH with interesting outcome.

Case 1

An 11-year-old boy was seen at 8 yrs for short stature. He had delayed teething and bilateral operated undescended testes. His height was at -2.1 SDS and Wt -0.4. His Target Ht is 169 cms. He has had 2 GH stimulation testes with suboptimal response. He was started on GH and had a positive response; however, the treatment was interrupted after 11 months for unusual side – effects. His height velocity slowed down markedly, and he was restarted on GH but unfortunately it was stopped for financial reasons. His last height measurement was at -1.68 SDS.

Case 2

A 17 years old girl was at 12 years for short stature. She was operated at 3 months of age for congenital heart disease. Her Ht was at -3.1 SDS and Wt -2.8. Her Target Ht is 155 cms. She had scoliosis of the back and was prepubertal. Her Karyotype confirmed a diagnosis of mosaic Turner Syndrome. She was started on GH after orthopedic consultation and showed good response. Her SDS improved to -1.4 SDS with a final Ht of 153.5 cms.

Case 3

A 12 yrs old boy, presented at 8 y and 3 months for short stature. He was born at term with a birth weight of 2.25 kg. He had dysmorphic features suggesting Russel Silver Syndrome. His height was at -3.6 SDS and Wt -4.1. His target Htis 153 cms. He was started on GH therapy and showed a good response with Ht increasing to -2.3 SDS and remarkable improvement of weight to -1.09 SDS.

Conclusion

Children with short stature and controversial indications for GH therapy can be given a trial of GH with vigilant follow up.

Growth Controversial Case Scenarios II

Adnan Al Shaikh, KSAU-HS, MNGHA, Jeddah, Saudi Arabia

The 30 minutes presentation will focus on controversial growth case scenarios arising from real clinical conditions illustrating the challenges in diagnosis and management of growth issues. Each case will have learning points that will be discussed and will highlight on the approved Indications of GH treatment in children. The first case is a child referred to endocrine clinic for assessment of failure to thrive and diagnosed to have Russell – Silver Syndrome (RSS), a sporadic condition which is characterized by severe intrauterine growth restriction and postnatal growth retardation, with a prominent forehead, triangular face, and body asymmetry. The options for GH treatment of RSS will be highlighted. The 2nd controversial case is a child with severe short stature with peak GH after GH stimulation test 11.2 mcg/L. She was diagnosed to have idiopathic short stature which is defined as height is - 2 SD below the mean for age, without evidence of systemic disease, endocrine, nutritional or chromosomal

abnormalities. We will discuss the sensitivity and reliability of GH stimulation tests and the options for GH treatment in idiopathic short stature. Making the correct diagnosis for a growth case is very important and making the decision for GH treatment is sometimes challenging.

The dilemma of gender assignment

Asma Deeb, Department of Pediatric Endocrinology, Mafraq Hospital Abu Dhabi, UAE

The external genitalia of the newborn baby is the determinant of gender at birth. Genital ambiguity in the newborn constitutes a medical emergency not only from the medical point of view but also from the social aspect. Various forms of genital ambiguity can be encountered. These forms include hypospadias with undescended testes, perineal hypospadias, single perineal orifice in female genitalia, apparently male genitalia with impalpable gonads and others. Karyo type is a crucial test to determine the genetic sex but it can be delayed. FISH might offer a quicker alternative. A pelvic ultrasound to look for Mullerian structure can be very helpful. Various biochemical investigations are required to confirm the diagnosis and aid gender assignment. A common form of genital ambiguity is a virilized XX baby in whom congenital adrenal hyperplasia is the commonest cause. Undrevirilized XY newborn has a long list of differential diagnoses. Based on long-term outcome studies, some forms of pathologies presenting with genital ambiguity have clear recommendations for gender assignment. Example of those are the female gender for the virilized XX baby or the severely unvirilized XY baby in complete androgen insensitivity syndrome. However, there are many other conditions where no clear cut recommendation is available and informed decision is always obtained with the family after discussion with a multidisciplinary team. In this talk, various clinical scenarios will be presented to highlight the dilemma of gender assignment.

Auto-immune diabetes scenarios: clinical & immune characteristics

John W Gregory, University Hospital of Wales, Cardiff University, Cardiff, UK

Type 1 diabetes (T1D) is a consequence of autoimmune-mediated damage to the insulin secreting beta cells of the pancreatic islets. It is associated with an 'at risk' HLA haplotype and an increased risk of thyroid dysfunction, coeliac disease, Addison's Disease, vitiligo, autoimmune gastritis and APECED Syndrome. Most guidelines advise annual screening of thyroid function, intermittent screening for coeliac disease and consideration of Addison's disease considering clinical symptoms and signs including a significant reduction in insulin requirements.

Case scenarios in monogenic diabetes

Abdelhadi Habeb, Prince Mohamed Bin Abdulaziz Hospital, Madinah, KSA

Monogenic diabetes (MGD) is a rare form of diabetes caused by single gene defect. MGD is a heterogeneous condition caused by mutations of more than 40 genes. These mutations can either

lead to insulin deficiency due to β -cell dysfunction or interfere with insulin receptors resulting in insulin resistance. The classical examples of MGD are neonatal diabetes (NDM) and maturity onset diabetes of the young (MODY). In Arabs, NDM is more frequent than other populations and has different spectrum, while MODY appears to be under-diagnosed. Making the correct diagnosis of MGD has important implication as it can guide the best treatment for these patients. For example, individuals with GCK MODY don't require pharmacological treatment, while patients with *HNF1A* and *K_{ATP}* mutations can achieve better glycaemic control on sulphonylurea than insulin. This concept of personalized therapy (pharmacogenomics) is also shown in few patients with thiamine responsive megaloblastic anaemia TRMA in whom early starting of thiamine can improve the diabetes control and may also result in discontinuation of insulin. In addition, the making the genetic diagnosis of MGD can explain different associated features and thus avoid invasive tests as well as providing families with accurate genetic counselling. The presentation will focus on clinical case scenarios illustrating the clinical utility of genetic diagnosis in the management of MGD.

Autoimmune monogenic diabetes: Clinical and genetic characteristics

Lebl J and collaborators, Department of Paediatrics, 2nd Faculty of Medicine, Charles University and University Hospital Motol, Prague, Czech Republic

Recently, several monogenic conditions with immune-mediated diabetes (similar to Type 1 Diabetes, with positive beta-cell autoantibodies) associated with multiple autoimmune and non-autoimmune immune-mediated symptoms were identified and elucidated at the genetic and pathogenetic level. They opened a deeper insight into the genetic regulation of immune system. Already in 1997, Autoimmune Polyglandular Syndrome Type 1 (APS-1; APECED) was recognized as the first monogenic autoimmune condition that is caused by biallelic pathogenic variants of *AIRE*(AutoImmuneREgulator) gene. It was followed in 2001 by IPEX syndrome (Immune dysregulation, Polyendocrinopathy, Enteropathy, X-linked) due to *FOXP3* mutations. Several novel syndromes with autoimmune diabetes due to monogenic immunodysregulation have been identified thanks to NGS techniques since 2014, caused by pathogenic variants of *STAT3*, *STAT1*, *LRBA*, *IL2RA*, *CTLA4*, and some other genes. They share some characteristics with Type 1 diabetes, including detectable beta-cell autoantibodies, dependence on exogenous insulin, and presence of additional autoimmune conditions. However, in opposite to polygenic predisposition to Type 1 diabetes, these conditions are caused by a highly penetrant single gene mutation, have specific clinical features and may be variable in presentation, even within one family sharing the same gene variant. Besides of diabetes, their symptoms include autoimmune thyroid disease, autoimmune cytopenias, lymphoproliferation with hepatosplenomegaly, diarrhoea, short stature, miscellaneous autoimmune symptoms and recurrent respiratory tract infections. These syndromes are rare and affect single individuals only. However, an early recognition of aetiological diagnosis allows predicting the long-term risks and

deciding on bone marrow transplantation in selected cases that may save the life. Administration of monoclonal antibodies that modify the abnormal immune response (e.g. abatacept) may help preventing further disease progression and bridging the period until bone marrow transplantation. Finally, these syndromes and their underlying genes substantially contribute to the general understanding of immune system regulation and of principles of immune mediated disorders.

Participant's Abstracts

Two different etiologies, one diagnosis of precocious puberty

Bushra Barakat, Paediatric Department, Dubai Hospital, Dubai, UAE

Case 1

Fatima, 4-year-old girl presented to our Endocrinology clinic for the assessment of increased body hair and breast enlargement, which was noticed by the mother over the last 2 years. Her systemic examination was unremarkable other than her breasts were soft, 4 x 4 cm bilaterally & Tanner staging was B3 and P1. She has normal external genitalia and no clitiromegaly. Her investigation revealed pubertal levels of LH, FHS, and Estradiol. Otherwise, other tests were all normal. Bone age was corresponding to 9 years. She was diagnosed as central precocious puberty. She was started on LHRH agonist. She is on regular follow up in our Endocrinology clinic & doing well.

Case 2

A 4-year-old boy presented to our clinic with 1 yr. H/O appearance of pubic hair, deepening of his voice, and change in appearance of his external genitalia. No any other concerns or complains. Systemic examination was unremarkable other than his Tanner staging was P2 G3. Genital examination showed normal external male genitalia, circumcised, saggy scrotum, and penile length 9 cm. Rt. Testis 6 ml in size with Irregular border, Lf. Testis 3 ml in size. Laboratory workup showed elevated level of testosterone with all other results within normal limits. Bone Age was advanced (9-10 years). LHRH test was suggestive of precocious puberty of peripheral origin. Diagnosis of precocious puberty is most likely secondary to a right virilizing testicular mass & that the workup excluded a central cause. He was referred to pediatric surgery for surgical intervention.

Pycnodysostosis: A rare cause of short stature

Aicha Naili, Algeria, Hassen Badi hospital, Paediatric service, Algiers, Algeria

Background: Pycnodysostosis is a rare genetic lysosomal storage disease characterized by osteosclerosis of the skeleton, wide anterior fontanelle, short stature and bone fragility. We report a case of a little girl whose parents have lost a lot of time and money and especially had a lot of stress before the diagnosis was made, while it is easy when the disease is known. The purpose of our presentation is to show the clinical and radiological features of pycnodysostosis.

Case report: A 3 years old female child consults for short stature. She was the product of a consanguineous marriage. Clinical examination revealed a severe short stature and a dysmorphic syndrome. Hands and feet are short and massive, nails are irregular. The skull is large with excessive protrusion of the frontal and occipital bumps and the anterior fontanelle is wide open. The mandibular is hypoplastic. The teeth are decayed. The nostrils are obstructed permanently. Radiological examination showed a generalized increase in bone density without fault modeling of metaphyseal bone. The bones of the hands are short with acroosteolysis of the distal phalanx of the second finger. Radiography of skull showed increased density of the skull base, wide coronal suture, hypoplastic facial bones. The lower jaw is poorly developed, and the mandibular angle disappeared. Radiography of the dorsolumbar spine showed a spondylolisthesis.

Discussion: Pycnodysostosis is an autosomal recessive osteosclerosing bone disorder characterized by increased bone density, dwarfism and skeletal fragility. It was described first by Maroteaux and Lamy in 1962. Pycnodysostosis is a rare bone disease characterized by proportionate short stature, wide open sutures and fontanelles, short stubby fingers, hypoplastic distal phalanges, retrograde mandible, multiple fractures and osteosclerosis.

Conclusion: the diagnosis of Pycnodysostosis is based on clinical and radiological features. We have presented a rare case of Pycnodysostosis presented with short stature. Early diagnosis of this disorder is essential as bone deformity and its complications are difficult to manage. Further proper counseling of the patient and their parents are utmost important to avoid osteosclerosis related complications.

Epidemiology of type 1 diabetes mellitus in Basrah, Southern Iraq: A retrospective study

Dhaighum Almahfoodh, Specialized Diabetes, Endocrine and Metabolism Center, Basrah, Iraq

Aims: To investigate the epidemiology of type 1 diabetes mellitus (T1DM) in Basrah city, Southern Iraq, between 2012 and 2016 among people below 40 years old.

Methods: This was a retrospective data analysis of electronic archives for patients with T1DM registered in Faiha Specialized Diabetes, Endocrine, and Metabolism Center (FDEMC), which is a tertiary referring Center in Basrah. The data include electronic database from August 2008 to February 2016. Incidence and prevalence rates are expressed per 100,000. Population of Basrah estimates were derived from official data of The Ministry of Planning of Iraq.

Results: There were 2536 people registered at FDEMC. Of them 53.5% were males. The overall mean age at first diagnosis was 15.3 ± 9 years and it was significantly higher in males; p value 0.0005. The prevalence rate of T1DM in people 40 years old and younger in 2016 was 87 per 100,000. Between 1 January 2012 and 31 December 2016, there were 818 identified new cases of T1DM. Of these, 417 (50%) were males. The average annual incidence rate of T1DM was 7.4 per 100,000 (95% CI, 7.1–8.1).

Conclusions: The incidence of T1DM in Basrah lies in the “intermediate group” according to DIAMOND project group classification. The incidence was increasing over the last three years. The data produced by this study provide a baseline for assessing future changes in the epidemiology of T1DM in Iraq.

Mauriac syndrome

Ilham Mohammed Omer, Department of Paediatrics and Child Health, Faculty of Medicine, University of Khartoum

Introduction: Mauriac syndrome is one of the complications of poorly controlled type 1 diabetes mellitus (T1DM).

It is characterized by poor glycemic control, hepatomegally, growth disorders with Cushing features and delayed puberty. The incidence of this syndrome has significantly declined with the introduction of long-acting insulin and improvement of the glycemic control, however cases are still seen in low resources countries as the optimum management is not possible for all patients.

Case report: A -14- years old boy from east of Sudan, was referred for evaluation of short stature and poor control of DM. He was diagnosed as T1 DM at 9-years of age. Since then he was on premixed insulin, 4- units in the morning and 2- units in the evening, which was not changed throughout the last 5-years. The doses were omitted several times either due to lack of insulin or patient poor compliance. He was admitted many times with DKA. The last one was 10 days prior to referral. Clinical examination revealed height 116 cm (less than third percentile), weight 20.3 kg, and (less than third percentile). BMI was 15.8. Protruded abdomen with hepatomegally 8-cm below the costal margin, muscle wasting and no signs of puberty. Investigations showed normal haemogram, liver renal and thyroid function tests. Microalbuminuria and coeliac screening were both negative. Blood glucose range between 270-400 mg/dl. Hb A_{1c} was 13%.

Conclusion: Based on the history, clinical features and investigations, the patient was diagnosed as Mauriac syndrome.

Wolfram syndrome type 2: Case report

Noor Al-Huda Sawalha, Palestine Red Crescent Society Hospital-Hebron Branch, Pediatric Department, Hebron, Palestine

Background: Wolfram syndrome is an autosomal recessive disorder characterized by the association of diabetes mellitus and early-onset optic atrophy, which can occur in varying combinations with diabetes insipidus, sensorineural deafness, renal tract abnormalities or neuropsychiatric disorders. The majority of patients harbour pathogenic WFS1 mutations, but recessive mutations in a second gene, CISD2 have been described in a few patients with Wolfram syndrome type 2 (WFS2). Unlike WFS1, patients with WFS2 have been reported to develop bleeding intestinal ulcers and defective platelet aggregation.

Case report: An eleven-year-old male child presented with a new-onset insulin dependent diabetes mellitus. GAD-Ab titer was negative. He had a history of peptic ulcer disease, optic atrophy, hearing impairment, secondary nocturnal enuresis and positive

family history of insulin dependent diabetes, optic atrophy and peptic ulcers (1 brother, 2 first degree cousins). Genetic testing for all known/putative monogenic diabetes genes has been undertaken for the proband. Testing for the identified mutation in the proband has been undertaken for the other patients. The proband, his affected brother and both cousins are homozygous for the previously reported CISD2 mutation, p. Glu37Gln confirming a diagnosis of WFS2.

Conclusion: Whenever encountering a case of insulin-dependent diabetes mellitus with optic atrophy early in course of diabetes, the diagnosis of Wolfram syndrome must be kept in mind, especially with positive family history of similar condition. The association with peptic ulcers is peculiar to WFS2. On the other hand, Wolfram syndrome patients do require the care of a multidisciplinary team of physicians and healthcare professionals.

Genetic background of cases of congenital hyperinsulinism of infancy in Nile Delta

Mohamed Awad, Egypt, Mansoura University, Children Hospital, Egypt

Background: Congenital hyperinsulinism in infancy (CHI) is a rare disorder characterized by wide variability in genetics and in response to therapy.

Aim: Our aim is to characterize the clinical and molecular features of Egyptian children with Congenital Hyperinsulinism.

Methods: Seven patients with CHI visiting Mansoura university children hospital were included. Consanguinity was reported in five patients. No one suffered from hyperammonemia. Molecular analysis of ABCC8 and KCNJ11 genes was performed in all patients, and subjects with no mutation underwent analysis of HNF4A and GCK.

Results: All the cases were diagnosed in the neonatal period and all of them was presented with hypoglycemic fits. Mutations in the ABCC8 gene was found in five patients (2 novel). In two cases no known mutation was detected in five cases were responsive to treatment. Two cases were not responsive to medical therapy and were undergone pancreatectomy. Recessive mode of inheritance was found in five patients.

Long-term high calcium infusion for vitamin D resistant rickets

Sultan Rashid Abdullah Al Matrushi, National Diabetes and Endocrine Center, Oman

Vitamin D resistant rickets is a regularly encountered disorder. Increased awareness of this disorder during the examination of children with bowed legs, even infants receiving normal supplements of vitamin D, may lead to diagnosis oftener. Treatment of the vitamin D resistant rickets consists of the administration of large doses of vitamin D and high calcium infusion. Careful observation of patients during the treatment to prevent over dosage and resultant hypercalcemia is very important. The patient is twenty-two months old boy was brought by parents for delayed walking. Patient is a product of a

consanguinity marriage and was born term by caesarian section due to fetal distress. His birth weight was 2.76 kg with good apgar score. He was on exclusive breast milk till the age of 6 months then started on complementary feeding. Clinically patient found to underweight & short (both under 3rdcentile), having clinical features of rickets x-ray finding are typical of rickets. Laboratory investigations showed hypocalcaemia, hypophosphatemia with highly elevated serum alkaline phosphatase It also showed elevated parathyroid hormone vitamin D found to be normal but very high 1,25 vitamin D. Patient needed high doses of calcium infusion on daily basis for more than 6 months till now since treatment was started for which a central line was inserted along with high oral supplements of vitamin D.

Conclusion: Vitamin D Resistant-Rickets will need long term high calcium infusion.

Neonatal panhypopituitarism: A unique presentation

Lilian Qarraa, Palestine, Department of Pediatrics of MOH in Ramallah, Makassed Islamic Charitable Hospital, Jerusalem, Palestine

Context: Infantile cholestasis should be evaluated completely to exclude genetic, metabolic, infectious, obstructive and endocrine causes. Congenital hypopituitarism is an uncommon cause of neonatal cholestasis and can present with hypoglycaemia. Treatment with glucocorticoid and thyroid hormones, play a significant role in the resolution of cholestasis and hepatosplenomegaly.

Objective: We report on an infant with panhypopituitarism, presenting with cholestatic jaundice, hypoglycaemia and high serum ferritin level suggesting neonatal hemochromatosis.

Methods: Comprehensive clinical and laboratory investigations were performed to establish the etiology of the presenting complaints. This included genetic, metabolic, infectious, as well as thorough hormonal profile (LH, FSH, PRL, TSH, FT4, ACTH and growth hormone stimulation tests).

Results: Hormonal evaluation revealed cortisol and growth hormone deficiency with central hypothyroidism. Other causes of cholestasis were ruled out. In addition, there was a high serum ferritin level of 2315 ng/ml suggesting neonatal hemochromatosis that was excluded by the absence of hemosiderin deposition in buccal mucosal biopsy. Treatment with cortisol and eltroxin resulted in dramatic improvement of the liver function tests, resolution of cholestatic jaundice and significant reduction of serum ferritin level. These findings support the theory that thyroid hormone and cortisol affect the bile acid independent bile flow and deficiencies of these hormones can cause abnormalities of the biliary structure and the function of bile canaliculi essential for bile excretion.

Conclusions: To our knowledge this is the first description of an infant with congenital panhypopituitarism, presenting with cholestasis, hypoglycaemia and high serum ferritin level. Panhypopituitarism should be considered in any infant who presents with cholestasis, hypoglycaemia, and other

manifestations of pituitary malfunction. High serum ferritin level most probably suggests acute phase reactant.

A case of hypertension: A child with apparent mineralocorticoid excess

Adil Al Amry, the Armed Forces Hospital, Muscat, Oman

Background: Apparent Mineralocorticoid Excess (AME) is a rare autosomal recessive condition. It arises from non-functioning mutation in the 11 β hydroxysteroid dehydrogenase 2 enzyme (11BHS2) that inactivates cortisol. The impaired conversion of cortisol to cortisone is associated with low renin, low aldosterone hypertension with hypokalaemia. This disorder is resistant to treatment with significant morbidity.

Case report: A 7 months old infant was incidentally found to be hypertensive during an admission with gastroenteritis. His clinical examination was unremarkable. Apart for low normal potassium, his renal function was normal. Initial workup including echocardiography showed evidence of mild-moderate left ventricular hypertrophy. Ultrasound Doppler and CT of the abdomen were normal. Endocrine investigations revealed low renin and low aldosterone; a clinical presentation suggestive of AME confirmed by genetic testing. His younger sister was also found to have the same condition. The hypertension was resistant and required multiple antihypertensives. His management was complicated as his parents were in denial and required social services support. The child had persistent hypokalaemia and developed nephrocalcinosis. At the age of 5 years, he developed intracranial haemorrhage. Subsequently, the child had spastic quadriplegic, lost speech and had seizures. He is followed up by endocrinology, nephrology, neurology and general pediatrics. Currently, he is on atenolol, spironolactone, prazosin, lisinopril, amlodipine, amiloride hydrochloride in addition to phenytoin, diazepam and baclofan. He undergoes extensive rehabilitation and has shown an improvement in his motor and language skills.

Conclusion: AME is a form of low renin hypertension usually diagnosed in infancy. The differential diagnosis includes pseudohyperaldosteronism and renal hypertension. However, AME causes severe hypertension with low aldosterone and hypokalaemia. The hypertension is difficult to control with a risk of developing stroke before the age of 10 years and significant morbidity.

A rare cause of thyroid dysfunction

Irfanullah, Department of Child Health, College of Medicine, SQUH, Muscat, Oman

Background: Thyroid hormones exert their effects through alpha (TR α 1 and TR α 2) and beta (TR β 1 and TR β 2) receptors. Resistance to thyroid hormone is characterized by a lack of response of peripheral tissues to the active form of thyroid hormone. In most of cases it is due to a mutation in THR β , the gene coding for thyroid receptor β (TR β). Recently there a number of reports in patients with thyroid hormone receptor α gene (THRA) defects.

Case report: A 3-year-old boy presented at the age of two

months with anemia which was refractory to treatment. Later he developed reduced activity and chronic constipation. He had dysmorphic features with coarse facial appearance with gross motor developmental delay and generalized muscular hypertrophy but negative gower's sign. The child was thoroughly investigated, initial workup showed microcytic, hypochromic anemia, normal levels of f T4 & TSH, raised creatine kinase (CK)) of 788 U/L. Subsequently found to have high f T3. Whole exom sequencing detected a heterozygous variant in thyroid hormone receptor α (THRA) gene, c.871G>A (p. Gly291Ser).

Conclusion: Resistance to thyroid hormone secondary to mutation in THRA gene lead to a distinct and consistent phenotype, characterized by clinical, biochemical and physiological features of hypothyroidism in specific tissues, together with subtle abnormalities of thyroid function. Thyroxine treatment can be helpful in these cases.

Li Fraumeni Syndrome (LFS): A virilizing adrenocortical carcinoma in a young girl that uncover tp53 mutation in her family members

Sara Al Jneibi, Department of Pediatric, Division of Endocrinology, Sheikh Khalifa Medical City, Abu Dhabi, UAE

Introduction: Adrenocortical carcinomas (ACCs) are rare in children, worldwide incidence 0.3-0.4 cases /million /year. LFS is a dominantly inherited familial cancer syndrome where patients tend to be predisposed to a number of cancers including ACCs. In classical LFS, due to TP53 mutations, lifetime incidence of cancer in carriers is close to 100%. Objective: Reporting ACC as part of LFS in young girl that lead to diagnosis of multiple first-degree family members with LFS. Method: A 2.5-year-old girl presented with rapidly progressive external genital virilization. Examination was unremarkable except for mild female external virilization along with facial acne, no abdominal mass noted. Her baseline serum androgens were all elevated with normal ACTH. Abdominal CT confirmed right adrenal mass, measuring 25 mm x 20 mm for which she had uneventful laparoscopic right-sided adrenalectomy. Histopathology confirmed localized adrenocortical carcinoma. She continued to be cancer free on subsequent surveillance. Her family history was significant for several first and seconddegree family members affected by wide range of cancers including two brothers who had died of brain tumors around the age of 10 years, a paternal cousin with acute Leukemia and a paternal uncle who died at the age of 45 years of gastric carcinoma. ACC in index case along with significant family history of LFS-related tumors triggered genetic testing for TP53 mutation, which turned to be positive; confirming the diagnosis of LFS. Shortly after the confirmation of LFS in index case, her 15-year-old brother was diagnosed with ALL, currently on consolidation phase and her Father died of pancreatic cancer at the age of 41. Carrier state testing for TP53 of her mother and other siblings (n= 7) was positive in her 13-year-old brother and 10-year-old sister. Both of affected siblings were diagnosed and had surgical removal of osteochondroma and osteosarcoma, respectively. Conclusion: Due to the diverse range of tumors found in the LFS spectrum, a thorough assessment of family

history of cancer is essential to guide screening strategies for asymptomatic relatives. Pediatricians have a central role in the recognition and thus proper referral of patients and their families to genetic cancer risk evaluation and management programs. Tumor surveillance will diagnose early tumors and improve clinical outcome in families recognized to have a hereditary cancer syndrome.

SHOX: Short Stature Homeobox

David AbuShamma, Makassed Islamic Hospital, Jerusalem, Palestine

Background: The short stature homeobox (SHOX) gene is a gene, located on both the X and Y chromosomes, which is associated with short stature in humans if mutated or present in only one copy (haploinsufficiency). Deficiency of the short stature homeobox-containing (SHOX) gene is a frequent cause of short stature in children (2–15%). Here, we report a mother and boy with SHOX deficiency due to a point mutation in the SHOX gene.

Clinical case: 6.5-year-old was presented for evaluate short stature, past medical history 2/5, term 40 weeks of Normal vaginal delivery, Birth Weight- 2.9 kg, developmental delay (learning in special education), Ichthyosis, undescended testicle – Left removed, and Right lowered. On medication: Ritalin (methylphenidate), Novitropan (Oxybutynin for incontinence). Family history (Mother had multiple miscarriages), underwent genetic screening and had chromosomal abnormalities. The mother's height- 1.56 cm, (her parents – grandmother - 1.56 cm, grandfather - 1.7 cm), first menstruation was at age 10.6 Y. Father's height - 1.83 cm and was notable for multiple individuals with short stature. His laboratory workup was noncontributory for common etiologies of short stature (kidney liver, thyroid function and celiac screen) - Normal. MRI, Karyotype and x fragile was normal. On examination: short stature with height standard deviation score (SDS) of -2.98; as well as arm span 3 cm less than his height, dysmorphism - protruding ears, dryness skin, left testicle - missing, Bone age = chronological age, irregular. Growth - 2.6 cm / year according to the last 3.3 month. Gene analysis (chip) was performed and showed: Missing of 8.2 MB at the end of short arm of chromosome X. Contains, among other genes one of them is SHOX. Deficiency of these genes is known to cause Ichthyosis, developmental delay and short stature. Growth hormone was initiated upon diagnosis and demonstrated improved height SDS.

Conclusion: This case demonstrates the role of SHOX- gene in growth and the deficiency of gene cause short stature.

Severe hypotonia and respiratory failure in infancy secondary to 1 alpha hydroxylase deficiency

Jamil Bahnasawi, Makassed Islamic Hospital, Jerusalem, Palestine

Background: Vitamin D dependent rickets type 1(VDDR1) is a rare autosomal recessive disorder caused by 1 alpha hydroxylase deficiency, that leads to low or undetectable levels of 1,25

dihydroxy vitamin D despite normal levels of 25 hydroxyvitamin D, caused by mutations in CYP27B1 that disrupt or lead to a total loss of the 1- α -hydroxylase activity and require treatment with physiological doses of calcitriol.

Case report: A 10-month-old female infant to a consanguineous Palestinian parent presented with history of recurrent chest infection, hypotonia, failure to thrive, splenomegaly and radiologic features suggestive of severe rickets. She had severe hypocalcemia, hypophosphatemia, elevated alkaline phosphatase and parathyroid hormone levels, although had normal 25- hydroxyl vitamin D-level. Whole exom sequencing revealed a novel homozygous mutation in the patient in exon 9 of CYP27B1 gene, while her parents were heterozygous for the same mutation.

Conclusion: To our knowledge, this is the first description of this disease in a Palestinian family with molecular confirmation, allowing accurate genetic counseling, early diagnosis of affected kindreds, early therapeutic interventions and avoiding complications and checking if the clinical presentation does correlate well with the specific genotype. The prevalence of this syndrome among Palestinian population remains to be determined.

Late presentation of necrotizing enterocolitis associated with rotavirus infection in a term infant with hyperinsulinism on octreotide therapy: A case report

Abdelaziz Alsaedi, Alhada Armed Forces hospital, KSA

Background: Congenital hyperinsulinism (CHI) is the most common cause of persistent hypoglycemia in infancy that can cause permanent brain damage. Consequently, optimal management is extremely important. Current pharmacologic and surgical treatment were available that included diazoxide and octreotides.

Case report: A 4-month-old Saudi male patient diagnosed at our hospital as CHI, treated with near total pancreatectomy and octreotide therapy of 30 mcg/kg/day presented with severe abdominal distension, vomiting and bloody diarrhea. The patient was diagnosed as necrotizing enterocolitis (NEC) associated with Rota virus infection which played together with octreotides as risk factors for NEC.

Conclusion: NEC can develop in patients treated with octreotides especially when associated with another risk factor such as rotavirus infection.

Precocious puberty: An interesting case scenario

Abdulla Al Harbi, Madina Maternity and Children hospital, Madina, KSA

A 6 years and 4 months old Saudi boy, not known to have any medical illness, referred to endocrine clinic because of developmental of pubic hair, and increased breast size bilaterally for 1 month. No H/O CNS infection, or surgery, no H/O head trauma, no H/O drug intake, no H/O similar illness in the family.

On examination: He looks well, not dysmorphic, no midline defect, Height on 90th centile, Weight on 50th centile. There is pubic hair stage II Prepubertal testicular size. There is gynecomastia bilaterally. There is acni in his face, Abd.: soft, lax, no organomegaly, we cannot appreciate any palpable mass.

Investigations: CBC, chemistry, LFT, TSH & FT4, hCG: all within normal range. Testosterone 7.39 mmol/L (N 0.2 – 2.9), 17 hydroxyprogesterone 5 µg/L. Bone age is 10 years old (advanced). We did GnRH stimulation test which ruled out the possibility of central precocious puberty. CT Abd. & pelvis: revealed Lt. suprarenal mass which is homogenous in shape, without calcification.

A case of adrenal insufficiency (Familial Glucocorticoid Deficiency)

Mohamed Helmy, Tanta University, Tanta, Egypt

Background: The adrenal gland secretes three hormones (cortisol, aldosterone and androgens). There are common causes of adrenal insufficiency; we present a rare cause known as familial glucocorticoid deficiency.

Familial glucocorticoid deficiency is a form of chronic adrenal insufficiency characterized by isolated deficiency of glucocorticoids, elevated levels of ACTH, and generally normal aldosterone production. Patients mainly have hypoglycemia, seizures, and increased pigmentation during the 1st decade of life. The disorder affects both sexes and is inherited in an autosomal recessive manner. Another syndrome of ACTH resistance occurs in association with Achalasia of the gastric cardia and Alacrima (triple A Syndrome).

Case report: Female infant aged 8 months, presented with hyper-pigmentation of skin with increased intensity over pressure areas, also the mother complained of failure to gain weight. But, there were no salt-losing manifestations. There was positive consanguinity. By examination, Dark skin pigmentation presented more at pressure points & body flexures with normal female genitalia. No signs of dehydration. Tears were present.

Investigations showed normal cortisol with high ACTH levels, no hyperkalemia, hyponatremia, or hyperreninemia, with normal blood gases, and normal levels of DHEA(s), 17 (OH) Progesterone, and Testosterone. So, we have abnormality in cortisol axis without associated hypoaldosteronism or hyperandrogenism. Then, we carried out short synacthan test; where there was poor response. So, we have a case of familial glucocorticoid deficiency. Treatment was by subcutaneous Hydrocortisone at a dose of 10 mg/m²/day divided every 6 hours.

Conclusion: A case of Adrenal insufficiency due to familial glucocorticoid deficiency (Isolated ACTH Resistance Syndrome).

Clinical and genetic analyses of 8 new patients with hereditary 1,25-dihydroxyvitamin d-resistant rickets from 4 unrelated families

Waheeb Al Dhalaan, Al Nakheel Medical Center, Riyadh, KSA

Background: Vitamin D dependent rickets type II (VDDR II) is a rare autosomal recessive disorder, inherited due to mutation on vitamin D receptor (VDR) leading to end organ unresponsiveness

to vitamin D. It is characterized by an early onset refractory rickets, hypocalcaemia, hypophosphatemia, growth retardation, hyperparathyroidism and elevated circulating levels of 1,25-dihydroxyvitamin D3 which is the hallmark of the disease.

Objective and hypotheses: The aim of study is to describe clinical, genetic, biochemical and long-term management of eight Saudi children diagnosed with VDDR II.

Method: All patients underwent complete clinical evaluation including: age at diagnosis, initial rickets symptoms and signs, family history of VDDR II, presence or absence of alopecia and their growth parameters, biochemical workup including: serum calcium, phosphate, alkaline phosphatase (ALP) and parathyroid hormone (PTH) levels and genetic study of VDR mutation; done by Paediatric Endocrinologists in King Faisal Specialist Hospital and Research Centre in Riyadh/Saudi Arabia. We presented patients data at baseline, first, second, fifth and tenth year interval post calcium infusion treatment (management protocol will be attached).

Results: All patients had full clinical and biochemical features of rickets including alopecia. The mean age of diagnosis was 3.6 year. Most of the patients had growth retardation at diagnosis (height below –2 S.D. below mean). Clinical and biochemical parameters were improved in all cases (detailed data will be attached). The mutation in VDR (Y295X Homozygous) was positive in all patients.

Conclusion: Early diagnosis of VDDR II with early treatment of IV calcium infusion will improve growth velocity; decrease rachitic manifestation and normalized calcium, phosphate, PTH and ALP levels (but not alopecia). More studies require seeing the effect of early vs. late treatment on bone density.

Adrenocortical carcinoma: An interesting case

Awad Al Qahtani, King Fahad Medical City, Riyadh, KSA

Background: Adrenocortical cancers in childhood are very rare tumors. The tumors have varied presentation either virilizing forms or presentation with Cushing's syndrome, or both. In children, due to the rapid development of symptoms they come to attention early. The first peak is in children less than five years and the second around the fifth decade. The most adult ACC are non-functional, in the pediatric age group, nearly 95% are functional. Virilization is the most common abnormality and Cushing's syndrome and hyperaldosteronism are less frequent.

Case study: A 3.5 y old boy presented with facial acne for 3 months, progressive weight gain, increased appetite, adult body odour and pubic hair for 1 week. On examination: He looked well and was not dysmorphic. His blood pressure was at the 99th centile, weight at 97th centile and height at 97th centile. He had fascial acne. Abdominal exam showed a mass occupying the left hypocondrium, epigastric and right hypochondrial regions. He had pubic hair at stage PHII and axillary hair AII with prepubertal testes. Investigations showed cortisol level of 1102 pmol/l ACTH 0.4 pmo/l (NR 1.6-13.9). Dehydroepiandrosterone sulphate (DHEA-S) 54.28 MCMOL / L (0.01 – 0.53) Testosterone 10.76 nmol / l (0.2 – 0.7) and normal renin and aldosterone. Abdominal CT scan showed a large multilobulated left flank mass lesion that

appears heterogeneous soft tissue lesion measuring 10 x 9 x 11 cm in AP, transverse and craniocaudal dimensions respectively. Streak of calcifications seen in the center of the lesion.

He underwent surgery, the tumor was inseparable from left kidney, so he underwent left nephrectomy.

Conclusion: Childhood ACTs occur predominantly in females and almost always causes clinical signs. Complete resection is required for cure. Residual or metastatic disease carries a poor prognosis.

Diagnostic pitfalls in an infant with hyponatremia

Muna Sharaf, Palestine, Makassed Islamic Hospital, Jerusalem, Palestine

Context: Hyponatremia seems to be the most electrolyte abnormality seen in hospitalized patients; it can be life threatening disorder if not treated appropriately. Hyponatremia in an infant has a wide differential diagnosis. Careful clinical and laboratory evaluation are essential to reach the right diagnosis and correct management.

Objective: We present a case of hyponatremia and hyperkalemia with acute renal failure in a male infant, who presented with sepsis and shock like symptoms; initial workup leads us to suspect congenital adrenal hyperplasia for which he was treated accordingly with IV fluids, corticosteroids and mineralocorticoid replacement. Due to lack of improvement in his condition with persistent hyponatremia and renal failure and new findings upon physical exam a different diagnosis was considered, and he was managed accordingly with rapid improvement in his condition.

Conclusion: A systemic approach for the evaluation of hyponatremia in an infant should be performed carefully combining both clinical and laboratory findings, frequent reassessment of the case is essential to improve the management. Endocrine pit falls are common, and one should carefully consider the differential diagnosis before starting the management.

Papillary thyroid carcinoma in a 6 years old child

Mohamed Naseer, Medical specialty city, Baghdad, Iraq

Introduction: Papillary thyroid carcinoma is the most common pediatric thyroid malignancy representing 85–95% of cases. Thyroid carcinoma in pediatric patients usually manifests as an asymptomatic neck mass, with a reported incidence of cervical lymphadenopathy that ranges from 35-83%. The neck masses are typically discovered incidentally by parents, patients, or physicians during routine physical examination. And thus, come to medical attention at widely varying stages of disease progression.

Case report: A 6 years old boy presented with 3 months history of multiple swellings in lateral aspect of neck on both sides. There was history of the patient having tubercular lymphadenitis, at the age of 3 months for which he was treated adequately. There was no family history of thyroid cancer and no history of irradiation.

On examination, there was significant bilateral cervical lymphadenopathy and thyroid gland was just palpable and firm. Largest lymph node measured 2 × 2 cm. Thyroid function tests were normal. Ultrasound scan of thyroid showed hypo echoic lesion on left lobe measured 0.7 × 0.8 × 0.9 cm. A diagnosis of carcinoma thyroid with level I, II, III, IV lymphadenopathy was made. Ultrasound scan of abdomen and chest X-ray had no significant abnormality.

Conclusion: Pediatric papillary thyroid cancer can have a very aggressive initial presentation including a high rate of local lymph node metastases and relatively high rate of distant metastases compared to adult patients. Although a lifetime recurrence rate is high, the mortality rates are still low. Palpable thyroid abnormalities in children should be viewed with suspicion and worked up for possible malignancy.

Albright's hereditary osteodystrophy in a 4-year-old Saudi girl

Salman Al Mansour, King Faisal Specialist Hospital, Riyadh, KSA

Background: Albright's hereditary osteodystrophy (AHO) is a syndrome with a wide range of manifestations including short stature, characteristic shortening and widening of the bones in the hands and feet (brachydactyly) and other phenotypic features. The features of AHO are associated with resistance to parathyroid hormone (PTH) and to other hormones (thyroid-stimulating hormone (TSH), in particular). This autosomal dominantly inherited condition is caused by mutations in the guanine nucleotide binding protein, alpha stimulating complex locus (GNAS1) gene.

Case report: Our patient is a 4-year-old, short girl with learning disability and attention deficit was seen initially in the orthopedic clinic because of avascular necrosis of hip. During routine workup, she was found to have high TSH and PTH. Clinical examination confirmed that no specific dysmorphic features patient's height was at -3 SDS. She also has short broad hand and feet. Her lab results showed calcium 2.32 mmol/L (2.10 – 2.60), phosphate 1.78 mmol/L (1.20 – 1.95), PTH 225 ng/L (15 – 65), TSH 14.5 mU/L (0.27 – 4.20), Free triiodothyroxine 17.8 Pmol/L (12 – 22), alkaline phosphatase 290 U/L (100 -240), Vitamin D3 (cholecalciferol) 40 nmol/L (61-200). Imaging study of hand revealed short broad metacarpal and pharyngeal bones with low bone mass. Based on those clinical and lab findings we expected pseudohypoparathyroidism (PHP). The gene sequencing study of GNAS1 gene resulted in a heterozygous likely pathogenic, NM_000516.4: c.432+4A>G variant, was detected and confirmed the diagnosis of AHO.

Conclusion: We can say it is wise to do some extra labs, like PTH, in bone diseases or orthopedic complain. Even with normal calcium, abnormality in PTH cannot be ruled out. The presence of a constellation of physical manifestations of AHO, particularly Archibald's sign, helps practicing physicians recognize a rare genetic endocrine disorder within the family members and reach the correct diagnosis.

Peripheral precocious puberty: Case presentation

Narmeen Al Bashrawi, King Faisal Specialist hospital, Riyadh, KSA

The term precocious puberty is defined as the appearance of secondary sexual characteristics before age of 8 in girls and 9 in boys. It is classified as central (gonadotropin- dependent / true precocious puberty) vs peripheral (non - gonadotropin depended). Management of such case depend mainly on the cause of the presentation which might be a symptom of a true life threatening disease as malignancy. So, an accurate diagnosis is needed. A two years old healthy Saudi girl presented to our hospital as a case of vaginal bleeding in cyclic pattern lasting for 3-4 days each. It was not associated with any other secondary sexual features nor sign of malignancy. The patient investigated which include all endocrine hormonal panel, abdominal ultrasound and GnRH stimulation test as well. All the investigation was non-conclusive initially. However, 2 years later a bone scan was done showing a polystotic fibrous dysplasia which raise the possibility of the cause of this presentation. A genetic study confirms the diagnosis of McCune Albright Osteodystrophy. MAO (OMIM #174800) non-inherited activation Mutation of GNAS postzygotic somatic mutation, characterize by the classic triad of polyostotic fibrous dysplasia (POFD), Café-au-lait skin pigmentation, and peripheral precocious puberty. However, the disease can be heterogeneous involving other endocrinopathy such as thyrotoxicosis, pituitary gigantism, and Cushing syndrome.

Diabetic ketoacidosis with fatal outcome, where did it go wrong?

Mohamed Kasem. Senior Consultant Pediatrics, Fujairah Hospital, MOH, UAE

4-year-old, female child, not known to have any medical illness before. Was admitted with history of polyurea and polydypsia since about two weeks. Seen 3 days prior to admission at health center due severe napkin dermatitis with skin excoriation, treated with local cream and sent home. One day before admission she started to have repeated vomiting, severe abdominal pain, easy fatigability then became drowsy with cold extremities and fast heart rate on the morning of the admission day, mother did not bring child to hospital due to social reasons as father was not around. Presented to emergency department at around 7:30 pm in severe shock: very cold extremities, weak pulsations and tachycardia, she was semi-coma, GCS 9/15. Her initial laboratory investigations revealed blood glucose 25 mmol/L, blood gas: PH 6.47, HCO₃ 2 mmol/L with ++++ urine ketones. Diagnosed as severe diabetic ketoacidosis with shock.

Initial management at ER: Intra-osseous line was inserted after repeated trails to insert IV cannula, received three boluses normal saline 10 ml/kg each. Transferred to PICU, Deficit and maintenance IVF were calculated according to departmental guidelines. Her condition remained critical with persistent irreversible shock (cold extremities, tachycardia, weak pulsations with poor perfusion and drowsiness. She had sudden cardiac

arrest 2 hours after admission, responded after 25 minutes of aggressive resuscitation including DC shock, intubated and connected to ventilator. Kept on IVF deficit and maintenance, insulin infusion, and three inotropes (dopamine, dobutamine and epinephrine). Repeated blood gases showed severe intractable metabolic acidosis with low bicarbonate level not more than 5 mmol/l. She developed repeated episodes of cardiac arrest with initial response to resuscitation but 18 hours after admission, she had cardiac arrest with no response to resuscitation.

Hashimoto's encephalopathy: Unusual presentation

Nisreen Qarieb, Jordan, Makassed Islamic hospital, Jerusalem, Palestine

Background: Hashimoto's encephalopathy is a rare clinically heterogenous condition consisting of encephalopathy, seizures and variable neurological and psychiatric manifestations, accompanied by high titres of serum antithyroid antibodies and is considered corticosteroid responsive.

Clinical data: A 13 y old female with a free past medical history presented with tonic-clonic seizures, behavioral and cognitive changes, unconsciousness, assessed to have encephalitis, her investigations showed normal CBC, Biochemistry, normal CSF analysis, normal CT-scan & Head MRI. Physical exam revealed goiter and blood tests and ultrasound showed picture compatible with Hashimoto thyroiditis and positive antibodies. She was treated with steroids with significant improvement in her clinical condition.

Conclusion: Unexplained encephalopathy in children should lead to evaluation of thyroid autoantibody titres and corticosteroids will improve the condition significantly. Immunoglobulins should be considered.

Sisters with del Chr8p11, Sudan, cytogenetic basis of microdeletion syndromes

Reham Sherif, Jaffer Ibnuff Paediatric hospital, Khartoum, Sudan

Background: Cytogenetic basis of microdeletion syndromes was established after the identification of similar submicroscopic deletions in a collection of individuals with a common phenotype.

Case report: Two female siblings presented with Short stature, height -3SD, poor growth, delayed development, dysmorphic feature, and congenital heart disease in one of them.

- Chromosomal analysis showed chromosome 8 deletion (46, XX, del 8p11) in both patients.

Conclusion: The short arm of human chromosome 8 (8p) spans about 44 million base pairs containing 484 annotated genes (NCBI Build 36.3 of the human genome) 1 Point mutations in more than 50 genes on the 8p are associated with various genetic disorders and diseases.

A case of a diabetic, hypothyroid, and growth-stunted girl treated with growth hormone

Mai Hajjat, Paediatric hospital, Ministry of Health, Amman, Jordan

Background: In hypothyroidism, thyroid hormone replacement (THR) has been shown to be effective in accelerating growth in growing children. Whether THR alone is sufficient to produce adequate catchup growth in severely stunted children is still questionable. There are inconsistent and some contradictory evidence on efficacy of the concomitant use of growth hormone treatment (GHT) and THR in treating the height deficit. Concern about bone age advancement has led some clinicians to the addition of Gonadotropin releasing hormone analogs (aGnRH), with or with GHT, to prolong the pubertal phase in treated hypothyroid children. Additional co-morbidities, such as diabetes further complicate the treatment plan of such children.

Case report: A 12-yr. old female was referred to the clinic due to uncontrolled Type 1 diabetes (HBA1C=11). She was found to be significantly stunted (height 111 cm significantly below 2 SD for age, weight: 27 kilo, BMI: 22). She had overt signs and symptoms of hypothyroidism, no pubertal changes (Tanner stage 1) and no goiter. She was investigated and found to have hypothyroidism (TSH: 100 I.U/ml; T4: 0.09 ng/dl). Antithyroid antibodies were positive (TPO=439 IU/mL), normal female karyotype (46 XX), and negative celiac antibodies. Bone age was reported as 8 yrs. She became euthyroid after three months of treatment. The patient's growth was followed up for 6 months after starting treatment and during this time she grew 2 cm (113 cm). She failed two growth hormone stimulation tests (exercise and clonidine) and according to National policy was a candidate for GHT. During the first 6 months of GHT she gained 6 cm in height (119 cm), still had no pubertal changes and bone age was reported as around 8 years. During treatment, her HBA1C slightly declined but remained high (HBA1C=9). She reports less hypoglycemic events, improved physical and mental status, and contentment with her growth acceleration. She is still under treatment. Bone age and pubertal changes will be closely monitored.

Conclusion: Growth failure should not be solely attributed to hypothyroidism and/or uncontrolled diabetes. Growth stunted hypothyroid children should be evaluated for growth hormone deficiency. Consideration should be given to growth hormone therapy (+/- aGnRH) for severely stunted hypothyroid children who may not be growth hormone deficient.

Thyroid disease and type 1 diabetes mellitus in Port Sudan

Amel Aziz Malik, Pediatrics department, Red Sea University Sudan

Background: Type 1 diabetes mellitus (T1DM) is associated with increased incidence of other autoimmune diseases. The shared genetic background may play a role in the disease pathogenesis. The aim of this study is to check the prevalence of thyroid autoimmune disease in children with type 1 diabetes mellitus (T1DM) under follow up in the pediatric diabetic clinic in Port Sudan.

Methods and results: Blood samples for thyroid function test: TSH, FT4 and T3 concentrations were measured in all patients with T1DM who are under follow up in the Pediatric clinic in Port

Sudan and sera were tested for anti-thyropoxidase (TPO) and anti-thyroglobulin antibodies for most of them. Other factors that can influence the result was analyzed such as, tribe, gender, age, diabetes duration and family history of type 1 DM, thyroid disease, were also evaluated for all the patient.

An uncommon case of adrenal insufficiency

Khoulood Salem, Fawzy Moaz Pediatric hospital, Alexandria, Egypt

Background: Congenital adrenal hyperplasia is a group of autosomal recessive disorders encompassing enzyme deficiencies in the adrenal steroidogenesis pathway that lead to impaired cortisol biosynthesis. Depending on the type and severity of steroid block, patients can have various alterations in glucocorticoid, mineralocorticoid, and sex steroid production that require hormone replacement therapy with variable Presentations.

Objective: We are reporting on a clinical case of 46 XY disorder of sex development who presented with adrenal insufficiency and female phenotype initially.

Patient and method: Our case is 11 years old of Indian origin that had severe glucocorticoid and mineralocorticoid deficiency presenting in the first month of life. She had normal female external genitalia so was assigned and reared as a female. She was started on treatment of hydrocortisone and fludrocortisone. During follow up, it was noticed to have low 17 OH progesterone level inspite of increasing pigmentation. She was also admitted to hospital with recurrent UTI and adrenal crisis. There is failure of pubertal development.

Results: Ultrasound of the abdomen and pelvis showed normal uterus for her age and non-visualized ovaries with unremarkable renal anomalies. Testicular-like tissue in the bilateral inguinal regions was detected with MRI abdomen and pelvis. Hormonal results showed persistently high ACTH, low 17OH progesterone. Electrolytes were normal. Chromosomal analyses were revealed (46XY). Gene study was requested for definitive diagnosis and genetic counselling and referred for urology doctor to evaluate the case.

Conclusion: This case demonstrates the importance of early doing Karyotype in such adrenal cases even without overt clinical features of ambiguous genitalia to be diagnosed, assigned and reread properly and to avoid the complications of intrabdominal testis.

Cushing's syndrome and Adrenocortical tumors

Dina Abd Elmoneim Aly Fawzy, Pediatric endocrinology and diabetology department, Alexandria University Children's Hospital, Alexandria, Egypt

Background: Adrenocortical tumors (ACT) are very rare in children with a worldwide annual incidence of 0.3 per million in children below the age of 15 years. The incidence is higher in young girls with a female/male ratio of 2:1. Virilisation, with early onset of pubic hair and acne, is the most common presentation.

The second most common manifestation is with hypercortisolism (Cushing's syndrome) and Hypertension. This may be due to either mineralocorticoid or glucocorticoid excess, increased aldosterone production. And the hypertension usually resolves after tumor resection. Diagnosis of an ACT is supported by raised levels of androstenedione, dehydroepiandrosterone sulphate (DHEAS), testosterone, and urinary steroids. These hormones are also useful markers for the detection of tumor recurrence during follow-up.

Case report: Eight months old female infant came presented with overweight since age of four months despite having normal birth weight, and she was told that the cause was over feeding, then she had developed acne, and excessive hair growth over body, here the parents came worried and resought medical advice through taking history it denoted that mother was treating her infant's napkin dermatitis by topical steroids continuously for 2 months. By examining the infant: weight =14 kg (+4.3 SD), cushinoid face, acne, hirsutism, abdominal striae, pubic hair. Her investigations revealed: serum cortisol am: 47.2 ug/dl, ACTH less than 1 pg/dl, DHEA-S: 807 ug/dl, testosterone: 4.25, VMA: 2.18 mg/day, metnephrine: 51.6 ug/day. Her multi slice CT: features suggestive of adrenal neoplastic lesion. Excisional biopsy was done, and the result is pending.

Conclusion: Rapid weight gain may be the only sign for serious pathological cause. Also, any infant with cushinoid features should be fully investigated to exclude adrenal tumors.

Adrenal tumor in a non-compliant congenital adrenal hyperplasia patient

Yasmine Ashraf, Endocrinology and diabetes unit, Alexandria University, Egypt

Background: Adrenal tumors are rare in children, comprising <0.2% of all childhood neoplasms. Secondary tumors complicating inadequately treated congenital adrenal hyperplasia (CAH) have been reported in both adult and pediatric population. It is thought to be due to insufficient glucocorticoid therapy leading to adrenocorticotrophic hormone (ACTH) hypersecretion.

Case report: A 12-year-old girl, previously diagnosed with classic salt-losing CAH at the age of 21 days, presented with hirsutism, masculinized voice after a prolonged period of non-compliance with glucocorticoid therapy.

Her investigations showed 17-hydroxyprogesterone >200 ng/ml, cortisol 0.82 µg/dl, testosterone 2.94 ng/ml, DHEA-S 411 µg/dl, ultrasound showed a well-defined isoechoic right adrenal lesion 4 X 3 cm, and CT abdomen with contrast showed lipid-poor right adrenal adenoma. The decision of surgical right adrenalectomy was deferred and she was shifted to dexamethasone 0.25 mg/m²/day, with emphasis on improving her compliance. Follow up CT with contrast after 1 year showed regression in the size of the adenoma to 3 X 1.5 cm, with improvement of her 17-hydroxyprogesterone level to 4 ng/ml, and testosterone level decreased to 0.28 ng/ml.

Conclusion: Adrenal adenomas can occur secondary to non-compliance to glucocorticoid therapy in patients with CAH due to

ACTH hypersecretion. It shows satisfactory reduction in size after adequate glucocorticoid therapy and might not need surgical excision.

Testicular function in infants and children with atypical genitalia due to disorder of sex development (xy dsd)

Shaima Rafat, Paediatric Department, Alexandria University, Egypt

Background: Traditionally, the standard endocrinological evaluation of 46, XY DSD cases is based upon measurement of testosterone, dihydrotestosterone and androstenedione and their ratios either in mini-puberty or in reaching definite diagnosis in many cases. More recently, there is a growing appreciation of the value of assessing Sertoli cell function because the most active compartment of the prepubertal testis is the seminiferous tubule compartment, in which Sertoli cells secrete hormones like anti-mullerian hormone (AMH) and inhibin B.

Objectives:

- Evaluation of the role of single sample of basal AMH and inhibin B as a tool for investigating the presence and function of the prepubertal testis without the need for hCG stimulation test.
- Reaching the best and simplest diagnostic approach for such cases in our endocrinology clinic within the available resources and investigations.

Methods and subjects: We studied 33 cases through a whole year. The patients underwent hormonal evaluation of gonadal function, including basal testosterone, FSH, LH, AMH, and inhibin B and hCG stimulation test besides imaging studies.

Results: Among these cases, there were varieties of diagnoses. There was a significant correlation between basal AMH and testosterone increment after hCG stimulation. A positive relation was found between AMH and inhibin B. Cases with primary gonadal failure had undetectable AMH and inhibin B and high FSH on the other hand.

Conclusion: Measurement of AMH is highly informative about the presence and function of testes. Although, that cannot obviate the need for hCG test. In cases with anorchia, it might substitute the need for invasive procedure as laparoscopy. FSH is an indirect measure of Sertoli cell function more than LH in the prepubertal period.

Growth hormone therapy in small for gestational age children how to improve the outcome

Ghada Elhassan, Paediatric endocrinologist, Children Hospital Taif, KSA, E-mail: ghadaazrag@yahoo.com

Background: Being small for gestational age (SGA) has a lifelong impact on growth & survival. Majority of infants born SGA achieve catch up between 16-12 months of age. However, 50% of the remaining non-catch up remains short as adults. Studies have shown that long term Growth hormone therapy has helped in normalization of adult height of children borne SGA.

Case report: Sara a 10 6/12 years old girl, was born SGA. At 6 5/12 years of age she was started on Growth hormone therapy because of short stature, with fair response to treatment during the 1st year. Subsequently she showed poor height gain, but accelerated weight gain. Seen at the age of 9 7/12 years in the paediatric endocrinology clinic, she was still short & has already started her puberty at Tanner stage 3, the decision was to continue Growth hormone therapy & start LHRH to suppress puberty. We are going to discuss the response to growth hormone therapy in this case, causes of poor response & how to optimize treatment outcomes in SGA children.

Conclusion: Response to Growth hormone treatment in SGA patients has been studied thoroughly; individualizing the treatment for every patient is now possible using the mathematically constructed growth prediction models. Close monitoring is needed to pick up the poor responders & act promptly to optimize treatment outcomes.

Two cases with early obesity

Olivia Mazloum, Jaffer Ibnuff Paediatric hospital, Khartoum, Sudan

Background: Many factors can lead to Obesity in children; however, we need a systematic approach to reach the exact cause. Although nutritional obesity is the most common cause, but in early years of age we should concenter pathological causes, especially if patient showed rapid weight gain.

Case report: Two girls presented at the age of 4 months, and 2.5 years respectively, with parental concern of progressive increase in body weight, which attributed to their marked increase in appetite, as they became aggressive & developed intractable crying when parents tried to stop feeding. No other complains, both are outcome of unconsanguineous marriage, ended at term by NVD, Case 1 had an average birth weight, while case 2 was born SFD. No history of hospitalization or head trauma. Family history was insignificant. Both were not on chronic medications.

Clinically: Both showed generalized obesity, no dysmorphic features, or goiter, Case 1 was normotensive, while case 2 was hypertensive, had bulky cheeks, with facial acne & hirsutism.

Both showed unremarkable systemic examination & normal female genitalia.

Laboratory workup revealed normal routine investigations, bone age consistent with chronological age, high serum cortisol with loss of its diurnal variation; it wasn't suppressed after dexamethasone suppression test.

Abdominal imaging: Revealed unilateral suprarenal masses in both. CT Chest was normal in both. Case 1 excisional histopathology revealed adrenocortical adenoma, Case 2 result is pending.

Conclusion: • Adrenal tumors are rare in children, which are mostly functional, and usually presented with cushingoid features, virilization or precocious puberty.

• In young children it might not exhibit classical features, they

generally present with increased somatic growth, and however, they are generally healthy.

• Polyphagia (which is a common symptom of nutritional or hypothalamic obesity), can be a rare feature of cushing syndrome as well.

Arachnoid cyst and isolated growth hormone deficiency: Unusual association

Khalid Al Kanhal, King Fahad Medical City, Riyadh, KSA

Background: Arachnoid cyst is a collection of cerebrospinal fluid which can presents in any site of the nervous system. Most of the cases are asymptomatic and discovered incidentally during neuroimaging for unrelated symptoms. For the symptomatic patients, they will present usually with neurologic signs and symptoms. Endocrinologic manifestations are rare especially in sites other than sellar region.

Case report: Here we report the case of a 3-year-old boy who presented with decreased level of consciousness and founded to be hypoglycemic. Examination of the patient was unremarkable including growth parameters. Elective fasting test was done (as the critical samples were not extracted during the hypoglycemia episode) then, hypoglycemia developed after 18 hours of fasting. Critical samples results were within normal apart from low growth hormone: 2.18 mIU/L and low IgF: 15.85 nmol/l which was confirmed by another elective fasting test and stimulation test using glucagon. Brain MRI revealed large subarchnoid cyst (4*5 cm) in the left middle cranial fossa and relatively small pituitary gland. As the hypoglycemia happened once and the growth parameters were within normal, the decision was not to start growth hormone treatment but at the same time, regular assessment regarding growth velocity and hypoglycemic attacks should be made. The follow up after 3 months showed no hypoglycemic attacks and normal growth velocity.

Conclusion: Arachnoid cyst can be rarely associated with endocrinologic manifestations like in our case and very few cases in the literature. The pathogenesis is not clear. Although growth hormone treatment has been reported to be safe in patients with arachnoid cysts, there is still concern about it and the plan of using growth hormone should be based on strong indication and evidence.

Monogenic diabetes in Pakistani infants and children: Challenges in a resource poor country

Mohsina Ibrahim, National Institute of Child Health, Karachi, Pakistan

Introduction: Monogenic diabetes is a type of diabetes resulting from mutations of a single gene that may be spontaneous *de novo* or autosomal dominant or recessive. Reported incidence is 1-4%. Consanguineous marriage is highly prevalent in the Pakistani population resulting in the high risk of genetic it is disorders. In a developing country like Pakistan the diagnosis of Type 1 IDDM is often delayed therefore making the diagnosis of monogenic diabetes is almost impossible. For the last 5 years we are not only diagnosing monogenic diabetes but confirming their genetic diagnosis with the support of Exeter Laboratory UK.

Methods: National institute of Child Health (NICH) is one of the largest tertiary care hospitals of Pakistan situated in Karachi, with referrals from Sindh, South Punjab and Balochistan. Diabetic Clinic was established almost fifteen years back and we have almost 660 registered cases in follow up. Samples were being sent of those children who were fulfilling the following criterion: Neonates with diabetes both transient (TNDM) and permanent neonatal diabetes (PNDM), Children with diabetes presenting before 6 months of age as type 1 diabetes is extremely rare in this age group, Children with diabetes diagnosed between 6 and 12 months of age and negative Type 1 Antibodies, Children with diabetes associated with extra pancreatic features.

Results: Being a referral hospital NICH we have almost 660 registered cases of Type 1 diabetes at our diabetes clinics. We have sent the blood samples of almost 30 patients till now, which include the infants who were diagnosed as having diabetes in less than one year of age and of the children who were older but having high index of suspicion of monogenic diabetes. In infants who were having type 1 diabetes in less than one year 4 cases of Wolcott Rallison (EIF2AK3) mutation and 2 cases of DEND syndrome (KCNJ11) and (ABCC8) were confirmed. Similarly, 1 case of GCK glucokinase mutation was confirmed which later changed their management. In older children DIDMOAD and thiamine responsive megaloblastic anemia were confirmed in five cases. Two siblings of (HLPH) Histiocytosis Lymphadenopathy were also confirmed. Both were having (SLC29A3) homozygous mutation. In four patients no, known mutations was identified.

Conclusion: Monogenic diabetes is not very uncommon, it was 4.5% in our study group. Higher rate of consanguinity predicts higher risk of monogenic or genetic diabetes. Neonates with mutations in the potassium-sensitive ATP channel subunits will be best treated with high-dose sulfonylureas rather than insulin. Diagnosis will help in case management and future counselling. There is great need and importance to address on the diagnosis of monogenic diabetes in largely consanguineously married population of Pakistan.

An interesting case of DSD

Esraa Shatnawi, Paediatric Department, School of Medicine, University of Jordan, Amman, Jordan

Background: The 46, XY disorders of sex development (46, XY DSD) are characterized by atypical or female external genitalia, caused by incomplete intrauterine masculinization with or without the presence of Müllerian structures.

Early identification of the genetic causes of a DSD will in many cases streamline and direct the clinical management of the patient.

Case presentation: A currently one year old phenotypically female patient, presented in the neonatal period with salt losing adrenal crisis Patient was deeply pigmented with female external genitalia and bilateral testes in inguinal area. Karyotyping revealed 46 XY.

Diagnosed as 46 XY DSD, with Adrenal Hypoplasia Congenita on treatment with hydrocortisone and fludrocortisone.

Conclusion: A careful clinical evaluation of the neonate is essential because most DSD patient could be recognized in this period and precocious diagnosis allows a better therapeutic approach.

Central or peripheral precocious puberty in a young girl?

Salwa Abdelbaqi, Jaffer Ibnuff Paediatric hospital, Khartoum

Background: Precocious puberty (PP), which is common problem affecting up to 29 per 100 000 girls per year, is defined as an onset of puberty before the age of 8 years in girls. It is classified to central or peripheral PP. To differentiate between 2 types, we need to assess basal LH & FSH levels and/ or levels post GnRH stimulation. When it is central in girls, it is more of idiopathic etiology rather than pathological.

Case report: Four years old female presented with three months history of progressive bilateral breasts enlargement and monthly vaginal bleeding. Moreover, she developed polyuria, polydipsia, increased tendency to sleep with lack of concentration and inability to perform simple tasks. Her past medical history and family history were unremarkable. Clinical examination revealed an unwell, sleepy child with loss of interest, behavioral changes and unsteady gait. No focal neurological deficit and the rest of CNS examination was unremarkable. Weight and height were on 90th & 97th centile respectively. She had bilateral breast enlargement B3. Normal other systemic examination. Diagnosis of central PP was not supported by the result of gonadotropins level in many occasions, however, based on clinical data we had, MRI brain was done and showed a central etiology. Operative intervention was done with devastating outcome.

Conclusion: • Central precocious puberty, although not commonly pathological in female, careful history and clinical examination supported by logical thinking may aid the diagnosis particularly when there is a controversy between clinical and laboratory data.

• Though collectively uncommon, the neoplastic causes of gonadotropin-dependent precocious puberty are very important to consider, especially in younger ages, as a delay in diagnosis may lead to adverse outcomes.

Ambiguous genitalia in infant with klinefelter syndrome (47, xxy)

Omneya Magdy Omar, Paediatric Department, Alexandria University, Egypt

Background: Klinefelter syndrome is a common sex chromosome aneuploidy with a reported incidence of one in 600 live births in males. The classical karyotype is 47, XXY, however, other variants may occur. It is characterized by aspermatogenesis and androgen deficiency due to progressive testicular failure. Klinefelter patients classically have complete male sex differentiation and genital anomalies are generally not recognized as associated features of the syndrome. It presents as tall adult male with gynecomastia, small testes, azoospermia, sparse body hair, and only a minority being diagnosed in childhood. Here we report a two-month infant with Klinefelter syndrome presented with ambiguous genitalia.

Case report: Two months old infant referred to endocrinology clinic because of ambiguous genitalia. The infant was full term with birth weight 2.800 kg to a non-consanguineous parent. On examination the infant appeared well, no dysmorphic feature, with normal vital signs, weight 5 kg and length 58 cm. Genital examination revealed that the phallus was 2 cm, rugated and non- hyper pigmented labioscrotal folds, non-palpable gonads in labioscrotal folds and the inguinal region, there was a small urogenital sinus in the perineum. The rest of physical examination was unremarkable, the infant was assigned female sex by the family.

Investigations were done to exclude congenital adrenal hyperplasia.

- 17 OH progesterone: 1.7 ng/dl
- Cortisol: 4.91 microgram/dl
- Normal sodium and potassium

Ultrasound examination of the pelvis revealed: small sized small soft tissue structure behind the urinary bladder likely to be uterine with no ovarian or testicular structure could be identified.

Karyotype: 47, XXY

Plan: Repeating the karyotyping, FSH, LH, testosterone, DHT, anti-mullerian hormone and pelvic MRI.

Conclusion: Paediatrician and endocrinologist should be aware of the possible association between ambiguous genitalia with Klinefelter syndrome.

Precocious puberty in 3 months old

Amal A. ALHakami, Pediatric Endocrinology Department, College of Medicine, King Saud University, Riyadh, KSA

Background: Central precocious puberty, is the early maturation of the hypothalamic-pituitary-gonadal (HPG) axis, with physical and hormonal changes of puberty. CNS abnormalities can cause central precocious puberty. We describe a case of precocious puberty caused by hypothalamic hamartoma.

Clinical case: 11-month-old girl presented with history of vaginal bleeding. The patient had three previous similar episodes occurred at six, eight, and nine months of age in a cycle-like manner. Breast enlargement noticed at the age of 3 months which increased in size gradually with no discharge. Neonatal history was unremarkable. Parents are not consanguineous and no similar condition in the family. History of polydactyly bilaterally with surgical removal at the age of three months. Physical examination showed length 90th centile, weight 95th central, no dysmorphic features and systemic examination was normal. Tanner stage: breast stage 3, pubic hair stage 1, and normal female genitalia. Investigation showed baseline LH, FSH, estradiol, and post GnRH stimulation test shows pubertal levels of Estradiol 247.50 pmol/L, LH 5.720 IntIUnit/L, FSH 8.310 IntIUnit/L. Cortisol AM 334.00 nmol/L, T4 Free 17.620 pmol/L, TSH 6.180 mIU/L, Prolactin 622 mIU/L. The radiological bone age was corresponding to about 18 months old. MRI pelvis showed the uterus to measure 5 x 1.6 x 1.3 cm with no remarkable focal abnormality. Right ovary measures about 1 x 1 cm and

the left measures 1 x 1.2 cm. MRI Brain shows hypothalamic hamartoma measuring 3 x 2.8 x 2.3 cm. Seen by neurosurgery, no surgical intervention as it is a benign lesion. Ophthalmological evaluation, no evidence of optic neuropathy. The patient started on leuprolide 3.75 mg monthly. Vaginal bleeding stopped; breast tissue regressed with adequately suppressed gonadotropin level in GnRH stimulation test. At the age of 14 months, history of suspicious laughter described by parents prompted an evaluation for gelastic seizures. Electroencephalogram study shows frequent high voltage spikes over the right occipital area.

Conclusion: Gonadotropin-dependent precocious puberty caused by hypothalamic hamartoma could present as early as three months of life. It can be isolated, or in combination with polydactyly and gelastic seizure as described in Pallister hall syndrome.

A challenging case of disorder of sex development (DSD)

Shaymaa Elsayed, Paediatric Endocrinology Department, Alexandria University, Egypt

Background: Disorders of Sex Development (DSD) is a condition in which development of chromosomal, gonadal or anatomical sex is atypical. They usually present with ambiguous genitalia or difficulty in assigning gender to a child.

The new DSD classification includes three main categories: 46, XX DSD, 46, XY DSD and Sex chromosome DSD. The category of Sex chromosome DSD embraces not only Ovotesticular DSD and mixed gonadal dysgenesis, but also Turner's syndrome and Klinefelter's syndrome. Infants with DSD represent a complex clinical challenge as a definitive diagnosis must be determined as quickly as possible so that the appropriate treatment plan can be established to minimize medical, psychological and social complications.

Case report: A two weeks old boy presented with ambiguous genitalia to our endocrinology clinic. A thorough history taking and clinical examination was done. He had microphallus, hypospadias with one palpable gonad at the left inguinal region. Karyotyping was ordered. Full laboratory and radiological investigations revealed the presence of small sized uterine – like structure with left testis at the inguinal region. Karyotyping was found to be 46, XX that was repeated twice. Laparoscopic and gonadal biopsy was done. The histopathological examination of the gonads revealed the presence of Ovotestis on the right side of the abdomen and left testicular tissue. We diagnosed the case as Ovotesticular DSD. A committee of DSD team was done to take the appropriate management plan about the surgical intervention and gender re-assignment.

Conclusion: Ovotesticular DSD is the rarest type of DSD. Optimal care of children with DSD requires multidisciplinary team consisting of a pediatric endocrinologist, pediatric surgeon or urologist, geneticist, and pediatric psychiatrist.

A challenging late presenting disorder of sex development

Area Bashir, Jaffer Ibnuff Paediatric hospital, Khartoum

Background: Disorders of sex development (DSDs) are defined as congenital conditions associated with atypical development of chromosomal, gonadal or anatomical sex. The evaluation and management of DSDs is complex and need multidisciplinary approach.

Case report: A 14 years old patient raised as a boy and was medically free. At the age of ten years taken for circumcision when found to have bilateral undescended testes, referred to pediatric surgeon and planned for orchidopexy, intra-operative the left gonad was found to be normally looking testes fixed at inguinal region but on the right side an ill-defined structure was found. Since then many investigations were done but no specific diagnosis made. Then, female secondary sexual characters started to appear in form of breast development followed by menses which started two months before presenting to our clinic. When seen at our clinic, was not hyperpigmented, had normal blood pressure, breasts Tanner IV, Prader III genitalia, scars of orchidopexy with palpable gonad at the left inguinal canal. Chromosomes 46XX, ultrasound showed normal appearing right ovary, well developed uterus and spindle-shaped structure on the left inguinal canal with peripheral calcification.

All these events put the patient and the family at a significant psychosocial stress. Our working diagnosis is Ovotesticular DSD; the patient is planned for gonadal biopsy, psychological assessment for gender identity and possible future sex reassignment.

Conclusion: Detailed genital examination in newborns would have picked such a case early and this great psychosocial dilemma could have been avoided. Multidisciplinary team work is mandatory when handling DSD cases for best outcome.

Hypothalamic obesity

Mouna Hajji, Medical Centre of Customs, Tunisia

Craniopharyngioma is a rare sellar region tumor occurring in children. It usually manifests as endocrinological and visual deficits. We present the case of a 13 years old boy who presented head aches, short stature (- 2SD), hemianopsia and normal external genital organs. Laboratory investigations revealed a low rate of IGF1 with failed GH stimulation test and corticotropin deficiency. The assessment of skeletal maturity found a 2 years delay of the bone age. MRI showed a large mass of the supra and intrasellar region compatible with a craniopharyngioma. A subtotal resection of the tumor was performed. Early complications were dominated by panhypopituitarism and obesity. The patient received hormone substitution therapy (GH, hydrocortisone, thyroxin and mineralin). At 6 years follow up, he still had short stature (-3DS) with no visual damages. Craniopharyngioma is a slow growing benign tumor. Eventhough, it can lead to blindness and panhypopituitarism. An early diagnosis is necessary to improve the prognosis. Surgery leads to better clinical and oncological outcome. However, endocrin complications are unavoidable and need adequate treatment.

A novel mutation in Saudi girl with insulin-resistant diabetes: Alström syndrome

Ayman Bakr, Al Hada Armed Force Hospital, Yaif, KSA

Introduction: Alström syndrome is an autosomal recessive disorder characterized by hearing loss, blindness, obesity, non-insulin dependent diabetes, and others.

Patient concern: A 10 years old Saudi girl, who presented with diabetic ketoacidosis and found to have hearing loss and blindness.

Diagnosis: Alström syndrome.

Interventions: Multidisciplinary team approach, with echocardiography, hearing test, eye exam and genetic test for Alström syndrome.

Outcomes: The patient has retinitis pigmentosa, bilateral hearing loss, double diabetes with weakly positive anti-insulin antibodies and DNA analysis showed novel mutation for Alström syndrome.

The hyperinsulinism/ hyperammonemia syndrome: A case presentation

Al Askari Zainab, King Faisal Specialist Hospital, Riyadh, KSA

The hyperinsulinism/hyperammonemia syndrome (HI/HA) is the second most common cause of hyperinsulinemic hypoglycemia of infancy. It is a rare genetic disease caused by activating mutations in *GLUD1*, a gene located on chromosome 10q 23.3., composed of 13 exons that encode the mitochondrial enzyme glutamate dehydrogenase (GDH). Most patients are carriers of a *de novo* mutation, but some familial cases show autosomal dominant inheritance. Clinically, most children manifest hypoglycemic symptoms after 4-6 months of age, triggered by fasting or high-protein meals, together with elevated serum ammonia. The severity of hypoglycemia is variable and is generally corrected by the administration of diazoxide. Fazza is a 23-month-old Saudi boy, referred to King Faisal Specialist Hospital and Research center (KFSHRC) in Riyadh as a case of hypoglycemia for investigation. He initially presented to the local hospital with generalized tonic-clonic seizures since the age of 6 months. During a convulsive episode, he was admitted to KFSHRC, and hypoglycemia was documented on that occasion. Glucose administration prevented seizures, which relapsed when the child received his feeding. During an episode of fasting hypoglycemia, we observed him having a low plasma glucose, high serum insulin, high C-peptide, normally high growth hormone and cortisol levels in response to hypoglycemia, low blood beta-hydroxybutyrate. Administration of glucagon had markedly elevated plasma glucose. Ammonia level was elevated in separate occasions irrespective of the glucose levels. PET-CT scan showed diffuse mild uptake throughout the pancreas favoring diffuse nesidioblastosis. DNA sequence analysis of the *GLUD1* revealed that the affected child was heterozygous for a substitution mutation in exon 7. The patient was managed well with diazoxide.

Conclusion: HI/HA syndrome is a rare but serious and generally treatable condition. It should be considered in the differential diagnosis of hypoglycemia before any harmful hypoglycemic effects on the brain.

An interesting case of disorder of sexual gonadal differentiation (DSD)

Manal Al Helal, King Faisal Specialist Hospital, Riyadh, KSA

Background: The birth prevalence of genital anomaly may be as high as one in 300 births but the birth prevalence of complex anomalies that may lead to true genital ambiguity on expert examination may be as low as one in 5000 births. In this interesting case, we will discuss the rare causes of disorder of sexual gonadal differentiation and how to approach similar scenarios.

Case report: We report a full-term newborn with normal birth weight and length born to consanguineous parents with ambiguous genitalia. No maternal androgen drug taken or virilizing signs during her pregnancy, no family history of similar illness or neonatal death in the family. On examination his vital signs were normal. He was not dysmorphic with no hyperpigmentation. There is phallus of 2 cm in length with Hypospadias, bifid scrotum and no palpable gonad. US abdomen showed a uterus. There well defined cystic lesion in the right inguinal area but no gonads were seen. There was a bilateral inguinal hernia containing bowel loops. Contrast genitogram showed short female like urethra with no external contrast. The structure is communicating with the vagina. Karyotype was 46XX. Adrenocorticotrophic hormone ACTH stimulation test done. ACTH was normal and cortisol level rose from baseline of 567 to 1073.88 nmol/l post stimulation. 17 hydroxyprogesterone was normal and hCG stimulation test showed a testosterone rise from 10 to 12.29 nmol/l (0.22- 2.9). MRI showed a uterus and a vagina. A gonad is seen on the left inguinal canal partially connected to the left side of the uterus. FISH analysis with an SRY probe (Yp11.3)/chromosome X(DXZ1) centromere probe set detected a hybridization signal pattern consistent with Female XX chromosome with no evidence of SRY signal seen. DNA sequencing test for CYP21A2 deletion not seen and no abnormal DNA sequence variant have been seen.

Our working diagnoses where:

- 46XX gonadal dysgeneses
- ovotesticular DSD

SRY gene mutation

Mixed or partial gonadal dysgenesis (46XX/46XY 46XY. 45X/46XY)

- 46XX testicular disorder of sex development
- SOX9 overexpression

Next plan to send the patient for exploratory laparotomy looking for right gonad and taking biopsy and to send for SOX9 gene mutation.

Familial pituitary dwarfism

Hamda Al Abri, Bahla hospital, Bahla, Oman

Case Report: This case report described three non-twin brothers who were evaluated and followed up in Omani national diabetic and endocrine center for short stature in 2016. They presented at age of 7.8, 11.6 and 13 years old. Mid parental height was at the 10th centile. There is no other sign or symptoms suggestive

of other syndromic feature or hormonal abnormality. They are product of non-consanguineous parents but from same tribe with family history of brother delay puberty with normal final height. The youngest child was seen at age 8.7 and was started on GH therapy at age of 9.3 yr as his workup confirmed low IGF-1 and poor response in GH stimulation test, normal IGFBP3 and MRI pituitary show small pituitary height for his age and delay bone age by 1 yr. By age of 10.3 year he is 10 centile. The Middle child was the index case and he was on presentation is 11.7 with high of -3.5SD and growth hormone was started as his workup show low IGF-1, IGFBP3, poor response to GH stimulation test with delay bone age and MRI pituitary suggestive of pituitary dwarfism. He responded well to treatment and after 18 month his height reached -2.9SD for his age. The eldest child was presented age 13 yr. he was initially follow up for 6 months as his height (-2SD) and GV was maintained but later as his workup suggestive of growth failure clinical and biochemical, he also started on GH therapy and he catch up his -2SD height for age after 9 months of treatment. No complication noted of all children. Still no genetic test workup reported for this family.

Conclusion: Familial pituitary dwarfism can have had variety in clinical presentation in same family members, but early intervention gives better outcome.

Acquired isolated growth hormone deficiency secondary to arachnoid cyst

Zeyad Al Hazmy, King Faisal Medical city, Riyadh, KSA

Background: Arachnoid cysts are benign cysts that occur in the cerebrospinal axis in relation to the arachnoid membrane and that do not communicate with the ventricular system. It's usually asymptomatic, diagnosed incidentally on imaging for other reasons. Symptoms vary by the size and location of the cyst; common symptoms are due to raised intracranial pressure. Endocrine abnormalities occur rarely with supra-tentorial cysts. When they occur, they usually include growth hormone (GH) deficiency and precocious puberty. This case report is for patient with growth hormone deficiency secondary to arachnoid cyst present as hypoglycemia.

Case report: 3 years old boy Referred as a case of hypoglycemia for evaluation. He is not known to have medical illness before. He suddenly started to have a decrease level of consciousness and drowsy 30 minutes after he took his breakfast. In hospital, glucose level was 35 mg/dl, and he received bolus dextrose. Examination was normal apart from hepatosplenomegaly. Prolonged fast for 18 hours resulted in hypoglycemia to 2.4 mmol/L. Critical samples showed insulin level of 9 pmol/L, C Peptide 0.088 nmol/L, GH 2.18 MIU/L, IGF1 5.85 nmol/L, Urine showed high excretion of ketone bodies. Cortisol 549 nmol/l, ACTH 14.7 pmol/l. Growth hormone stimulation test with glucagon resulted in poor response. MRI Brain and Pituitary: was show large arachnoid cyst (4*5 cm) in left middle cranial fossa, with relatively small pituitary gland. Bone age showed delayed to 30 months while chronic age is 38 months. Patient diagnosed to have isolated growth hormone deficiency, secondary to arachnoid cyst.

Conclusion: Arachnoid cyst should be considered in the diagnosis of isolated growth hormone deficiency.

Primary growth hormone insensitivity syndrome (Laron syndrome): A case report

Soraya Kerkouche, Department of Paediatrics, Algiers University, Algiers, Algeria

Introduction: Primary growth hormone insensitivity syndrome (Laron Syndrome) is a very rare autosomal recessive disorder caused by defects of growth hormone receptor (GHR).

Case Report: We report the case of a 4.5-year-old girl born to a consanguineous family who presented with severe short stature. Her intrauterine period was uneventful, she was delivered full term via vaginal delivery and she presented a brachial plexus at birth. Birth weight was 3.5 kg, birth length was 53 cm. The growth curve revealed a height of < -2 SD when she was 1-year, < -3 SD when she was 2-year-old and < -3 SD when she was 4-year-old. At diagnosis, height was 88.1 cm (-3.93 SD), weight was 11 kg (< -3 SD) and BMI was 14.2 ($-.77$ SD). She had typical dysmorphic facies: frontal bossing, saddle nose, and mid-face hypoplasia. Routine hematologic and biochemical profiles excluded any systemic illness. Bone age was 2 years when she was five years old. Karyotype was 46 XX. IGF1 levels were very low (< 25 ng/ml) contrasting with high GH levels, exceeding > 100 μ UI/ml after glucagon stimulation. IGF1 did not increase after IGF1 generation test GH 0.035 mg/kg/day for 3 days). Genetic analysis revealed homo/hemizygote mutation of the GH receptor gene (missense mutation p. Lys 233Glu) thus confirming the diagnosis of Laron system.

Conclusion: Laron Syndrome (LS) is a rare genetic disorder. Until now, less than 300 cases have been described. Children with LS, present with severe postnatal growth retardation and the same clinical features than congenital isolated GH deficiency. Growth hormone (GH) levels are high, while IGF1 levels are low before and after GH administration.

Short stature: Local prevalence & paradigms

Hakim Rahmoune, Department of Pediatrics, University Hospital of Setif, Setif 1 University, Algeria

Background: In 2010, the World Health Organization (WHO) estimated that stunting affects more than 171 million children before school. For this purpose, monitoring of growth and weight is considered an imperative parameter for every child health; enabling the practitioner to detect, without delay, several disorders in growth as well as potential serious conditions.

Objective: The aim of the study is to estimate the local prevalence of the short stature in the city of Setif (Algeria), according to the WHO growth curves in the schooled child aged from 05 to 11 years and to recognize its distribution according to various parameters.

Methods: This is a cross-sectional descriptive study on a representative sample of pupils enrolled in primary school of Setif. Pupils had anthropometric measurements and referred according to WHO growth curves (2007 edition). Short children

(< -2 Standard Deviation-SD-) were identified and were carefully examined. A first line work-up is ordered in pupils < -2 SD or shifting their curves more than 1 SD below their genetic target and/or gaining less than 4 cm /year.

Results: The study enrolled 2493 primary school pupils. The estimated local prevalence of short stature in the target population (age 5 to 11 years) was 1.8% (CI 95% [1.3 - 2.4]). This prevalence was higher (3%) in suburban areas than in urban areas (1.2%) ($p=0.001$). Clinical and laboratory management found a causative factor in 34.28% of the short children.

Conclusions: Short stature is a public health problem and might be due to a treatable condition. In the study region, poor socio-economic conditions appear to remain a significant risk factor in view of the consistently higher rates of short stature in rural/suburban areas compared to cities.

Vitamin D status in correlation to HbA1c among IRAQI children and adolescent with T1DM

Mohammed Firas Abadi, Baghdad University, Baghdad, Iraq

Objectives: To evaluate 25(OH) vit. D levels among T1DM children and adolescent and its correlation to HbA1c.

Methods: A prospective case control study of a total of 120 (58 male and 62 female), of children and adolescent, aged 5 years to 16 years with type 1 diabetes mellitus was undertaken. The study was run in two diabetes centers. Levels of vitamin D were evaluated in the above study cohort and in 50 non-diabetes children controls.

Results: Serum 25(OH) vitamin D was significantly lower in patients with diabetes as compared with the controls. Of the 120 diabetic patients, 110 (91.7%) had low vitamin D, while only 20 (40%) of the control had low levels. There was a positive correlation between vitamin D deficiency and high HbA1c.

Conclusion: Vitamin D insufficiency is common in the studied children and adolescents with diabetes. Low levels of vitamin D is more commonly seen in patients with poor diabetes control.

A case of non-salt losing congenital adrenal hyperplasia presenting with bilateral testicular rest tumor

Shima Atef, Endocrine and Metabolism Pediatric Unit, Cairo University, Cairo, Egypt

Background: Testicular adrenal rest tumor (TART) is benign ACTH dependant tumor occur in uncontrolled cases of congenital adrenal hyperplasia (CAH). Although TARTs are usually benign, they obstruct the seminiferous tubule, leading to testicular destruction and failure if untreated. Usually only tumors of more than 2 cm are detectable by palpation because of their location within the rete testis. Accordingly, screening of TART should be performed in male CAH patients.

Case report: Male patient 9 years old presented with bilateral testicular enlargement and increased penile length. By examination: bilateral lumpy firm irregular testis with stretched

scrotal skin. Stretched penile length was 18 cm. Hormonal profile reveal: elevated 17(OH) progesterone, decreased cortisol, elevated ACTH, human chorionic gonadotrophin (HCG), alpha fetoprotein levels were normal.

Scrotal U/S: Bilateral testicular enlargement with heterogeneous echopattern with preserved outline and increased vascularity. Hydrocortisone was started at a dose 20 mg/m²/day divided every 6 hours. Bone age is advanced, growth hormone treatment is considered in treatment plan after control of adrenal state to improve final adult height. A diagnosis of bilateral testicular adrenal rest tumor due to non-salt losing congenital adrenal hyperplasia.

Conclusion: TART is a present complication of CAH which indicate suboptimal hormone replacement which necessitates proper control to save the endangered testis.

An interesting case of neonatal hypoglycemia

Ahmed Al Ali Jaafar, Baghdad University, Baghdad, Iraq

A 6-month-old male presented with history of repeated fits. In one of his attacks, random blood glucose was found to be critically low. Insulin level was very high and diagnosis of hyperinsulinemic hypoglycemia was confirmed. He was started on diazoxide trial for 2 weeks, but the patient not respond. PET SCAN showed diffuse pancreatic disease. Genetic study showed that the patient had ABCC8 missense mutation for which mother was a carrier. Octreotide treatment was initiated and subtotal pancreatectomy was performed.

Neonatal diabetes with exocrine pancreatic insufficiency due to mutation of PDX1 gene

H. Berrani, Diabetology and Endocrinology unit, pediatrics II, Children's hospital of Rabat

Introduction: Recessive PDX1 mutations are a rare cause of pancreatic agenesis, with few cases reported worldwide. Therefore, we report the clinical and genetic profile of a Moroccan girl with homozygote mutation of PDX1 gene.

Observation: Our patient is 17 months old. Her father has a mellitus diabetes type 1. She was born to non-consanguineous parents after a full-term pregnancy and her birth weight was 1400 g. She doesn't have any clinic dysmorphic features. She has persistent neonatal hyperglycemia. The peptide C was undetectable. Anti-GAD antibodies and anti-Langerhans cells were negative. She doesn't have chronic diarrhea. The fecal elastase-1 was low. The patient started insulinotherapy, pancreatic enzymes and nutritional support. The magnetic resonance imagery revealed pancreatic agenesis. Genetic testing confirmed homozygote mutation of PDX1 gene.

Conclusion: PDX1 mutation is a cause of isolated permanent neonatal diabetes in patients with pancreatic agenesis. Genetic screening for permanent neonatal diabetes is recommended as a genetic diagnosis reveals the mode of inheritance, allows accurate estimation of recurrence risks and confirms the requirement for insulin treatment.

Lipoid congenital adrenal hyperplasia due to steroidogenic acute regulatory (STAR) mutation in an algerian patient

Kahina Mohammedi, Algiers University hospital, Algeria

Background: Lipoid congenital adrenal hyperplasia (LCAH) (OMIM # 201710) is the most severe form of congenital adrenal hyperplasia. It is due to a defect in the conversion of cholesterol to pregnenolone, causing adrenal insufficiency, 46, XY disorder of sex development (DSD).

Case report: A new-born girl was admitted at 15 days of life for mild dehydration.

Family history: Both parents were healthy and consanguineous. The patient has a healthy sister. A brother died at 2 months of age (sudden death), there was no family history of disorders of sex development (DSD). The patient was born at 40 weeks of gestation, Birth weight was 3700gr. Examination showed Signs of dehydration. She had a normal female external genitalia with no palpable gonads in the labial folds. Laboratory analysis revealed low sodium levels (114 mEq/l) and slightly elevated potassium levels (5.2 mEq/l). Plasma cortisol (20.23 µg/dl), 17OH-progesterone, (0.92 ng/ml) DHEA-S (1.53 µg/ml), Δ4-Androstendione (1.10 ng/ml), 17-hydroxypregnenolone (<0.10 ng/ml) and aldosterone (<10 pg/ml) were low, while ACTH (1403.20 pg/ml) and renin (33501 pg/ml) were elevated, consistent with the diagnosis of primary adrenal insufficiency with salt wasting syndrome. The patient was rehydrated and treated with hydrocortisone and fludrocortisone.

Genetic analysis: A mutation of HSD3B23 was ruled out by direct sequencing. Next Generation Sequencing revealed a homozygous mutation of STAR (c.306+2dupT in intron 3), (the parents were heterozygous for the same mutation). NGS also revealed the presence of SRY, this was confirmed by the karyotype (46, XY).

Conclusion: STAR mutations in classic LCAH should be considered in the differential diagnosis of new-born babies and infants with primary adrenal insufficiency.

Necrobiosis lipidica diabetica

Afnan Abusrewil, Tripoli Medical Center, Libya

Necrobiosis lipidica is a rare, chronic granulomatous and an inflammatory skin disorder characterized by irregularly shaped, callous lesions with reddish-brown pigmentation and central atrophy, frequently occurs in association with diabetes mellitus. The pathology is collagen degeneration with granulomatous response, associated with thickened blood vessels and fat deposition. The underlying cause is unknown but is believed to involve microangiopathy. We report a 12 years old girl who have been diagnosed with type 1 diabetes since 2008. Since then, she is on multiple daily injection therapy of insulin. Despite she is on intensive insulin therapy regime, her HbA1C is persistently high (9.6-12%). 4 years ago, she developed multiple cutaneous ulcerations tracking deep into the dermis of the extensor of the lower limbs. Suspicion of Necrobiosis Lipoidica Diabetica (NLD) was made and was confirmed by skin biopsy of the pretibial

lesions. NL treatment is very difficult to manage, especially in the ulcerated forms. Many drugs have proved effective only in isolated cases. Local treatment with steroid and the improvement of HbA1C have significantly improved her lesions as she was put on continuous insulin infusion therapy subcutaneously.

Effectiveness of fluid therapy management of children with diabetic ketoacidosis

Khaled Al Khashab, Diabetes & Endocrine Unit, Cairo University, Cairo, Egypt

Background: Diabetic ketoacidosis (DKA) is the most common complication of type 1 DM. The aim of this study was to detect the best sodium concentration in rehydration fluids for managing DKA in children.

Objectives: To evaluate the effectiveness of fluid therapy regarding total amount, rate and sodium content used in management of children with moderate and severe diabetic ketoacidosis at Diabetes, Endocrine and Metabolism Pediatric Unit (DEMPU), New Children Hospital, Cairo University.

Methods: Over 12 months, 131 patients with moderate and severe DKA were admitted at ICU of DEMPU. They were managed according to DKA protocol of ISPAD. All patients received shock therapy (if needed) & rehydrated at first 4 hours by 0.9% saline containing solutions in both groups. After that, two different sodium concentrations (0.9% saline & 0.67% saline) of rehydration fluids were selected randomly. Both groups were monitored clinically & laboratory all through DKA management till resolution of DKA.

Results: HCO₃ levels at 8 & 12 hours were significantly higher among patients received (0.67% saline) with p value < 0.001 & 0.004 respectively. There was no significant difference between the two groups in the corrected sodium levels at 8 hours with p value: 1. Shorter duration of ICU admission was also significantly observed among patients received (0.67% saline) when compared to those received (0.9% saline) with p value < 0.001.

Conclusion: The use of 0.67% saline in rehydration of children presented with moderate and severe DKA leads to shorter ICU admission with more rapid correction of metabolic acidosis.

A treatment dilemma in a child with diabetes

Samah Ahmed, Mafraq Hospital, UAE

Introduction: Associated illnesses with diabetes are of wide variety including autoimmune diseases like celiac and thyroid, genetic diseases like DIDMOAD, others like neonatal diabetes, monogenic diabetes and syndromes of insulin resistance all of which present differently adding to the difficulty of controlling diabetes. Despite advances in study and management of diabetes, rare cases presenting with gelastic seizures and hypothalamic involvement are of diagnostic dilemma. More research and case reports are required to improve the quality of life of such patients and their families.

Case: 4 years old female diagnosed with diabetes for 2 years on premixed insulin. She presented with excessive weight

gain, increased appetite, fatigability and abnormal tendency to frequent sleeping. This is associated with several attacks of convulsions and abnormal behavior especially during sleep. There are no symptoms suggestive of other systemic involvement. There is no significant family history. She is intellectually poor and has limited social interaction. On examination the patient was obese but has no dysmorphic features. Systemic examination is unremarkable with no neurological deficit. She had optic atrophy and was partially deaf. She has poorly controlled diabetes with readings between 300-475 mg/dl. Her thyroid and liver functions were normal. EEG report is normal and has negative ANA profile. Brain imaging was unremarkable. Diagnosis of DIDMOAD was confirmed.

Premature pubarche

Hana Delileche, Assistant in Pediatrics, Algeria, Algiers

Case: Premature pubarche refers to the early appearance of pubic hair, axillary hair, or both in children without other signs of puberty. The etiology of premature pubarche is an earlier than usual increase in the secretion of weak androgens by the adrenal glands (also termed premature adrenarche). We report a girl followed up for a premature pubarche. She is the 4th of a sibling of 5 children including 2 sisters followed for PCOS and a sister followed for a central precocious puberty. At 7.5 years, her bone age was read at 7 years and 10 months. Her FSH was 2.41 IU/L (NR 2-8), LH 0.02 IU/L (<0.5) and oestradiol was prepubertal. Her thyroid function was normal. Her pelvic USS was unremarkable. At the Age of 9.5 years, her pelvic USS showed a heterogeneous hyperechoic rounded image of 17 mm at the right ovary which was confirmed by MRI scan. Tumor markers were negative. She had surgical excision and the biopsy confirmed benign teratoma histologically.

Conclusion: premature adrenarche is not an uncommon condition. However, underlying tumor should be considered and excluded.

Pituitary stalk interruption syndrome: Case report with isolated growth hormone deficiency

Badi Alenazi, Department of pediatrics, AlYamamah hospital, Riyadh, KSA

Introduction: Pituitary stalk interruption syndrome (PSIS) is characterized by a triad of thin or interrupted pituitary stalk, aplasia or hypoplasia of the anterior pituitary and absent or ectopic posterior pituitary. It is a rare congenital pituitary defect manifesting with variable spectrum of pituitary hormone deficiency. The estimated incidence of PSIS around 0.5 in 100 000 births. It is a rare disease but should be considered in the differential diagnosis of severe short stature in children.

Case report: A 4 years old boy presented to pediatric endocrine outpatient clinic with a history of short stature and small penis. He was a product of 34 weeks of pregnancy and delivered by normal spontaneous vaginal delivery birth weight 1.67 kg (10th centile), birth length 41 cm (10th centile) and head circumference 31 cm (50th centile). He was admitted to neonatal intensive unit for one month due to prematurity. He had no medical or family history of note and his developmental milestones were appropriate for

age. On examination, he has no dysmorphic features and his short stature was proportionate. He had frontal bossing and was prepubertal with a stretch penile length of 2.3 cm (below -2SD) for age. Growth velocity average was 1 cm in 6-month follow-up. Investigations showed a normal full blood count, kidney, liver and thyroid function and a negative Celiac screen. Hormonal analysis revealed IGF-1 of 36 (normal: 25-157 ng/ml), IGHBP3 0.6 (normal 0.8-3 mg/L). Stimulated growth hormone level by clonidine and glucagon showed a peak GH level of 1.8 ng/mL (normal >10 ng/ml). Basal FSH, LH and Free Testosterone were normal at prepubertal level. Bone age was 2 years. MRI pituitary showed ectopic posterior pituitary, pituitary stalk was not visualized and small anterior pituitary size which is consistent with diagnosis of Pituitary stalk interruption syndrome. On the basis of these findings, he was diagnosed as PSIS and started on growth hormone treatment. Diagnosis of pituitary anomalies pituitary anomalies should be considered in the differential diagnosis of severe short stature in children.

Absent mullerian structure in a seventeen year old girl

Ahmad Al Ghamdi, Pediatric department, Al-Baha University, Al-Baha, KSA

A mullerian abnormality encompasses a wide range of systemic abnormalities which throws a real challenge to the gynecologists for chalking out the appropriate strategy for their diagnosis and management. The most basic classification of mullerian duct defects consists of agenesis and hypoplasia. Mullerian abnormalities are often associated with other systemic abnormalities. In the reported case, we describe a seventeen years old Saudi female present with history of primary amenorrhea with normal breast development and normal female external genitalia. Laboratory confirmed normal female sex (46XX) and normal hormonal assay. Radiological imaging showed that she had absent uterus, normal ovaries and a pelvic kidney.