Non Communicable Diseases in Children

January - June 2019

Issue 38 | Volume 1
Dear Friends and Colleagues, am grateful to everybody who took time to send in their abstract and share their experiences for our newsletter. The executive committee is delighted to see how paed endo is growing by your sharing of the experiences. It is thrilled that the presentation of the newsletter matches the quality of the content produced by our members.

Our January to June 2019 issue highlights the showcase event of the year-the annual conference and meeting, the ASPAE summer school and the annual dinner and dives into some of the recent development in Endocrine services in Africa, these include articles analysing subjects like Diabetes, Thyroid and its abnormalities, oral health in diabetes, HIV and diabetes, Over weight and obesity, Rickets and Congenital Adrenal Hyperplasia suffices.

Disorders of Sexual Development are also a hot topic as of late, as evidence by the article/articles about day to day and challenging cases. This issue also contains an article about the highlights of the ASPAE meeting, information about the summer school and care of our patients.

I hope our members have found some time to relax and enjoy Lagos, and look forward to seeing our members out-and-about as the services are in full swing before we know it.

Dr Edna Majaliwa MD MMED
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Nigeria hosted the 10th Annual ASPAE Scientific Conference and 2nd Sub Sahara Summer School. The coordination was led by the Local organizing chairperson and past ASPAE chair, Prof Abiola. Against all odds they hosted a very informative conference with delegates from all over the world: India, United Kingdom, United States of America, East Africa, South Africa, Central Africa and of course West Africa. This conference had an unique flavor with representation of Francophone countries: Cameroon and Ivory Coast. Hot topics discussed in the conference ranged from challenges and solutions of diabetes management in Africa, unique presentations of endocrine conditions and metabolic diseases in Africa. The Nigerian team crowned the intellectually stimulating conference with exposure to authentic Nigerian food, music and dance.

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ORAL DISEASES IN A YOUNG POPULATION OF PATIENT LIVING WITH TYPE 1 DIABETES MELLITUS IN CAMEROON: EPIDEMIOLOGICAL AND CLINICAL ASPECTS.
Badieu Chetcha A., Matip Anne M., Kanguia L., Dehayem M., Ngao Umt Sap S., Desvictores S., Sabngui E.

Introduction: Diabetes has been unequivocally confirmed as a major risk factor for periodontitis, which amplifies the immune response to pathogenic oral germs and, therefore, lead to the destruction of periodontal tissues.

Objective: To evaluate the frequency and typeology of oral diseases observed in a cohort of patients living with type 1 diabetes in Cameroon.

Methods: Oral diseases were clinically assessed in 101 patients living with type 1 diabetes mellitus aged from 7 to 28 years, followed up in a project “Changing Diabetes in Children in Cameroon” (CDiC) and 101 nondiabetic control subjects (12-29 years of age).

Results: Fifty 55 percent (55.4%) of DM patients vs. 19.8% of controls used an inappropriate brushing technique \( p = 0.001 \) and 81.2% of T1DM patients had never consulted a dentist, vs 48.5% of controls \( p = 0.001 \).
For periodontal index, the average plaque index of patients with type 1 DM patients was 46 ± 31%, while it was 24 ± 23% in controls \( p = 0.001 \) and the mean bleeding index was 51 ± 30% in T1DM patients vs 19.2 ± 23% in controls \( p < 0.001 \). Gingival inflammation and severe localized chronic periodontal disease were more common in T1DM patients; 53.5% vs 19.9% in controls and 13% in T1DM patients vs 1% in controls respectively, with a \( p = < 0.001 \). The number of teeth with evidence of attachment loss was significantly greater in patients with diabetes 28.8% vs 16.8% in controls \( p = 0.032 \). The Decays, Missing and Filled (DMF) index in T1DM was high 5.7 ± (4.8) versus 5.4 ± (4.2) in controls \( p = 0.642 \). The prevalence of dental caries increased in both groups; 80.2% in T1DM patients and 90.1% in controls. Diabetes and horizontal brushing were correlated with the onset of oral diseases in our study population with \( p = < 0.001 \), \( p = 0.03 \) respectively. The prevalence of oral diseases was higher in T1DM patients with poor glycemic control, with a \( p = 0.031 \).

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Figure 1: Oral diseases in DT1 compare to controls
Conclusion: The prevalence of oral diseases was high in our study population and much higher in poorly controlled patients. Patients living with T1DM should take seriously the threat posed by oral diseases by improving their oral hygiene. The multidisciplinary management of patients living with T1DM should include a systematic bi-annual oral examination and oral hygiene education.

PATTERN AND DETERMINANTS OF DIABETIC KETOACIDOSIS IN CHILDREN WITH TYPE 1 DIABETES MELLITUS AT THE OBAFEMI AWOLOWO UNIVERSITY TEACHING HOSPITAL COMPLEX, ILE-IFE, NIGERIA
Elusiyani JBE, Olorunmatenl OC, Kareem PJ, Odunlade OC

ABSTRACT

Background: Diabetic ketoacidosis (DKA) is a life-threatening complication of T1DM. However, there are few reports on the pattern of presentation and outcome of DKA among the childhood diabetic population in Nigeria.

Objective: To determine the pattern and outcome of children managed for DKA at the Paediatric Endocrinology Unit of the Obafemi Awolowo University Teaching Hospital Complex (OAUTHC), Ile-Ife, Nigeria over a ten year period.

Methods: It is a retrospective review of the clinical records of all the children managed for T1DM. Ethical approval was obtained from the Ethics and Research Committee, OAUTHC. Relevant information obtained include patient’s age, age at diagnosis, duration of Diabetes, number and frequency of DKA, family characteristics, outcome of admission, availability of regular insulin administration and blood glucose monitoring.

Results: There were a total of 15 children with DKA during the study period with a male to female ratio of 1:1.1. However, there were 28 DKA episodes experienced over the study period putting the average ratio of DKA per patient at 1.9. DKA was the first feature of DM in majority (86.7%) of the subjects. The mean age at diagnosis of DM was 11.9±3.6 years with about half (53.3%) occurring during the preadolescence period. Only the socio-economic status of the patient showed a significant negative correlation with frequency of DKA. All the children had a good outcome of management of the DKA.

Conclusion: DKA is the most common initial presentation of DM with a high rate of recurrence.
PREVALENCE OF DYSGLYCEMIA AMONG CHILDREN RECEIVING HAART AT THE PAEDIATRIC INFECTIOUS DISEASES CLINIC OF UNTH, ITUKU-OZALLA.

Ohuche I.O, Oduwole A.O, Chikani U.

ABSTRACT
Introduction: HIV infection is an important chronic illness among children globally, and especially in developing countries such as Nigeria. Introduction of highly-active anti-retroviral therapy (HAART) has led to improved survival of children with HIV, but with associated challenges such a concurrent emergence of metabolic disorders among these children over time.

Objective: To determine the prevalence of dysglycemia among HIV-positive children on HAART.

Methods: Ninety-two HIV-positive children on HAART were recruited from the paediatric infectious diseases clinic of the University of Nigeria Teaching Hospital, Ituku-Ozalla, after consent was obtained from their parents and assent obtained from the subjects. Fasting blood glucose samples were obtained using finger-prick testing with an Accu-check glucose meter and test strips. Values were read off from the glucometer and categorised into normal, pre-diabetic and diabetic values. Normal values were further sub-categorised into high-normal and low-normal values. Data was analysed using the statistical package for social sciences version 22.

Results: Out of the ninety-two subjects recruited for the study, 94.6% had normal fasting blood glucose values, while 2.2% had impaired fasting blood glucose (pre-diabetic values). None of the subjects had fasting blood glucose values within the diabetic range. Sixty-seven percent of subjects with normal fasting blood glucose levels had high-normal values.

Conclusion: The prevalence of dysglycemia among HIV-positive children on HAART is low. However, there is a high prevalence of high-normal fasting blood glucose values among these children.
Recommendation: Regular monitoring of blood glucose should be incorporated into the routine care of these patients, for early identification and management of pre-diabetes and diabetes among these children.

NEONATAL DIABETES MELLITUS MIMICKING PERINATAL ASPHYXIA: A CASE REPORT

Achancua C J, Olateju K, Adesina C T, Okonkwo C U.

ABSTRACT
Introduction: Neonatal diabetes mellitus (NDM) is a rare form of hyperglycemia occurring within the first few months of life, lasting for at least two weeks and requiring insulin therapy to maintain normal blood glucose level. It could be permanent or transient and little is known about this disease in Nigeria.

Methods and Results: We report a case with clinical diagnosis of transient NDM in a three day old male neonate who presented with refusal to suck since birth, fever, fast breathing, weight loss, dehydration and depressed primitive reflexes. He was initially managed for moderate perinatal asphyxia with neonatal sepsis but following blood glucose level that remained high after rehydration, withdrawal of glucose containing fluids and low blood C-peptide level, the diagnosis was changed to NDM and he was placed on intravenous and subcutaneous insulin for 21 days, when blood glucose level reduced to between 3.6-7.5mmol/L and insulin was later discontinued.

Discussion and Conclusion: NDM shares similar clinical features with other neonatal illnesses so that it can only be identified with high index of suspicion and very low threshold for blood glucose estimation in newborns admitted into the neonatal unit. Specific diagnosis requires molecular genetic testing which is not available in our resource poor setting.
Introduction: Diabetes mellitus (DM) is the commonest endocrine disorder of adult-and childhood. In childhood, there is relative increase in the proportion of children with type 2, compared to type 1, attributed to increasing incidence of obesity. Objectives: to describe demographic and clinical profile of children accessing routine outpatient diabetes care at the Paediatric Endocrinology Clinic of the Lagos State University Teaching Hospital, Ikeja, Lagos in South-West Nigeria.

Methods: Retrospective chart review of all children accessing care at the paediatric endocrinology clinic in Ikeja hospital -Nigeria. Demographic and clinical data were extracted, put into Microsoft Excel Sheet 2013 and analysed with SPSS version 21. Data are presented as mean ± SD or median IQR for continuous variables and frequencies (%) for categorical variables.

Results: Twenty-three subjects have been seen at the paediatric endocrinology clinic since inception in March 2017 till December 2018. The mean ± SD age at first visit was 10 ± 3.5 years (range 2-17 years). Half (50%), 41% and 9% of the subjects were aged 5-10, more than 10 years and less than five years of age, respectively. Most (60%) were girls. Median duration of symptoms before presentation at the clinic was 30 (73) days. All were born at term and the majority were exclusively breastfed as infant. Most (88%) had type 1 DM; only two and one subjects, respectively, had type 2 and steroid-induced DM. Baseline HBA1C, with or without anti-CAD, antiRA2, C-peptide and insulin, was not available in the majority as they could not afford them alongside the cost of life-saving insulin therapy.

Conclusion: Type 1 DM remains the commonest form of DM in our cohort of mostly school-aged girls. Optimal diagnosis and management is still challenge by unaffordability of essential investigations, highlighting the need for advocacy for free or subsidised care such as inclusion of DM care in the National Health Insurance Scheme.
WHAT'S NEW IN INSULIN

Moran A

For decades after the discovery of insulin in the 1930's, only animal (beef, pork) insulin was available. In the 1980's, recombinant DNA technology allowed the human insulin gene to be inserted into bacteria or yeast, turning them into “mini-factories” producing insulin molecules identical to human insulin. These molecules are quickly degraded and would have to be given continuously to mimic normal human insulin action, so they were bound to different molecules to manipulate their action profiles. Regular (soluble) and NPH insulin are human insulins. More recently, analog insulins have been developed. This simply means that the human insulin gene has been manipulated to produce an insulin that works quicker or lasts longer. These are more physiologic than human insulins, but still do not exactly mimic normal pancreas function. There are many new insulins being developed to act more quickly (to more exactly match the rise and fall in blood glucose associated with food intake) or to be a more stable basal (background) insulin. Analog insulins are expensive and not widely used in resource poor settings. Insulin pumps are a way to continuously deliver insulin, and continuous glucose monitoring (CGM, “sensors”) continuously measure glucose in interstitial fluid. Recently, pumps and sensors have been linked so that pumps can auto-adjust based on glucose levels and trends.

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PREVALENCE AND RISK FACTORS FOR HYPOGLYCAEMIA AMONG CHILDREN ADMITTED TO THE EMERGENCY PEDIATRICS UNIT OF FEDERAL MEDICAL CENTRE.

KATSINA
Abraham M, Suleiman B, M. Bashir M. F, Ogenuzi E.E, Oduwole A, Irara Y.

Introduction: Hypoglycaemia occurs when blood glucose falls below optimum level for cellular metabolism. It is currently defined as plasma glucose less than 3.3 mmol/L in infants and children. Hypoglycaemia is common among children presenting with acute illness at paediatric emergency units. Data on prevalence and mortality rates associated with hypoglycaemia is scarce in Northern Nigeria Objectives: to determine these rates of hypoglycaemia and associated risk factors.

Methodology: This is a descriptive cross-sectional study conducted at the emergency paediatrics unit of Federal Medical Centre, Katsina, from Dec 2016 to March 2017. A total of 146 participants were recruited consecutively until sample size was completed. Random blood glucose (RBG) test was done using Accu-check meter from capillary sample. Venous blood samples were collected into fluoride oxalate bottles for immediate laboratory confirmation of hypoglycaemia. Samples were analysed through glucose oxidase method using Jenaacy 6051 bench colorimeter. Hypoglycaemia was corrected with intravenous bolus of 200mg/kg of 10% D/W, and maintained with infusion of 4ml/kg/h or feeding as appropriate. Relevant socio-demographic information was obtained after stabilization. Data analysis was done with SPSS version 21.

Results: The overall prevalence of hypoglycaemia was 6.2 per cent with mean RBG of 6.4 mmol/L. The mean age was 62 month with M: F of 1:1. Sixty per cent of the patients were from low socioeconomic class. The clinical conditions complicated by hypoglycaemia were septicaemia, typhoid fever, severe protein-energy malnutrition (PEM), severe malaria, malignancy and acute nephritis syndrome. Period more than 12 hrs from last feed was significantly associated with hypoglycaemia ($\chi^2=33.4; df=2; p$
Proportion of death was higher (22%) among the hypoglycaemic compared to 10% in non-hypoglycemic patients ($\chi^2=1.24$, df=1, p= 0.257).

**Conclusion:** In view of the above findings we concluded that, hypoglycaemia should be sought for and treated in all acutely ill children presenting at emergency units, especially those with history of prolonged interval from last feed.

**DIAZOXIDE USE IN A CASE OF NEONATAL HYPERINSULINEMIC HYPOGLYCEMIA: OUR FIRST EXPERIENCE.**
Rdekoya AO, Rdekanye TE, Abolurin OO, Adebowojo OO

**Objectives:** Hypoglycemia is a common phenomenon in the infant of a diabetic mothers. However, managing persistent hypoglycemia as a result of neonatal hyperinsulinism could be quite challenging in a low-resource setting. This report describes an experience with the use of diazoxide in a preterm infant of diabetic mother with hyperinsulinic hypoglycemia in Nigeria.

**Methods and results:** We report a case of a 61-hour old severe, male neonate, infant of diabetic mother, who was referred from a secondary health care facility on account of respiratory distress. He developed hypoglycemcemia few hours after admission which persisted for several days despite of progressively increasing dextrose concentrations to as high as 20% at 1.0mg/kg/min glucose infusion rate, adequate enteral feeds and hydrocortisone for 10 days. Serial random blood glucose values remain persistently less than 50mg/dl, with a mean value of 25mg/dl, prior to diazoxide therapy. Critical sample taken during an hypoglycemic episode revealed hypocortisolism (108nmol/l [Normal: 240-618]), hyperinsulinemia (7.1iu/ml) and normal growth hormone levels (2.66µg/l[Normal <5.4]). Serial urinalysis revealed glycosuria. However, other parameters such as free fatty acids, β-butyrate, lactate and pyruvate could not be investigated due to financial constraints. Unfortunately, a repeat of the previously conducted investigations could not be conducted due to severe financial constraints. Oral diazoxide was administered at 5mg/kg/dose 12hourly with achievement of normoglycemia within an hour of commencement. Oral hydrochlorothiazide was given simultaneously at 4mg/kg/day in 2 divided doses. The medication was discontinued after 14 days of administration with no rebound hypoglycemia thereafter. The baby has been on follow-up visits since then and there has been no developmental delays.

**Discussion and Conclusion:** Hyperinsulinemic hypoglycemia is defined as inappropriately raised plasma insulin concentration during an hypoglycemic episode (Random blood glucose (RBC) < 3.5 mmol/L) in infants receiving glucose infusion rate (GIR) > 8mg/kg/min, with reduced ketone bodies and free fatty acids and a increased glycemic response to parenteral glucagon administration, resulting from a dysfunction in ATP-sensitive potassium channel of the pancreatic β-cell. The patient had the transient form because it resolved within several days. This is observed among infant of diabetic mothers or those with perinatal asphyxia. Other risk factors documented are male gender, caesarian section delivery, small for gestational age and poorly controlled maternal diabetes. Diazoxide has been documented as an important drug in managing hyperinsulinemic hypoglycemia. This report emphasizes the importance of diazoxide in the management of persistent neonatal hypoglycemia and the need to have the medication readily available. A low-normal dose may have significant effect.
Introduction: Hypoglycaemia occurs when blood glucose falls below optimum level for cellular metabolism. It is currently defined as plasma glucose less than 3.3 mmol/L in infants and children. Hypoglycaemia is common among children presenting with acute illness at paediatric emergency units. Data on prevalence and mortality rates associated with hypoglycaemia is scarce in Northern Nigeria Objectives: to determine these rates of hypoglycaemia and associated risk factors.

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Conclusion: In view of the above findings we concluded that, hypoglycaemia should be sought for and treated in all acutely ill children presenting at emergency units, especially those with history of prolonged interval from last feed.
OVERWEIGHT, SCHOOL OBESITY AND RISK FACTORS IN PARAKOU (BENIN REPUBLIC) IN 2017
Agossou J., Noudamadjio AR, Agbeille MF, Adedemy JD, Kpanidja MG, Houffon R

ABSTRACT

Objectives: Describe the anthropometric profile of high school and college students in Parakou in 2017.

Methods: This was a descriptive and analytical cross-sectional study conducted from May 1 to June 15, 2017 in public and private colleges and high school in Parakou (North of Benin Republic). It covered a representative sample of 730 randomly selected students using the WHO two-stage cluster survey technique. The weight and height of each of the students included in the study were measured followed by the calculation of body mass index (BMI). The diet and lifestyle data of the study participants were collected. These data were analyzed using the software Epi info 7.2.1.0. Prevalence ratio (PR) was used to measure associations with their confidence interval and the difference was considered significant when p < 0.05%.

Results: The prevalence of overweight and obesity was 12.5% and 3.7%, respectively. Overweight students came from public and private institutions respectively in 8.4% and 4.1% respectively. For obese students, 1.4% came from public institutions and 2.3% from private institutions. The factors associated with obesity were: sex (p = 0.0012) female more than males, type of institution (p < 0.001) private more than public, father’s socioprofessional category (p = 0.0037), excessive consumption of sugary drinks (p = 0.0367), level of physical activity (p = 0.0118), average time spent on television per day (p = 0.0281), heredity (p < 0.001).

Conclusion: Overweight and obesity are a time bomb in the colleges and high schools of Parakou with the long-term development of non communicable diseases that cause premature death. It is essential to put in place a coherent and effective prevention mechanism.

RISK FACTORS ASSOCIATED WITH IMPAIRED GLUCOSE TOLERANCE AMONG CHILDREN RECEIVING HAART AT THE PEDIATRIC INFECTIOUS DISEASES CLINIC OF UNTH, ITUKU-OZALLA.
Ohuche JO, Oduwole AO, Chikani U.

ABSTRACT

Introduction: Metabolic disorders in HIV-positive children on treatment with HAART are a source of growing concern, given the long-term impact, morbidity and mortality of non-communicable diseases, even in developing countries. Identification of risk factors associated with these metabolic disorders is an important step in the management of HIV-positive children.

Objective: To identify the risk factors associated with the development of impaired fasting blood glucose among HIV-positive children on HAART.

Methods: A descriptive cross-sectional study, in which children on HAART were recruited by consecutive sampling. Information regarding bio data was obtained using an interviewer-administered questionnaire. Risk factors for the development of glucose intolerance such as the type of HAART regimen, duration on HAART, duration of HIV infection, and family history of diabetes were also obtained. Blood glucose was
measured using capillary blood samples and an Accu-check glucometer. Data was analysed using the Statistical Package for Social Sciences version 22.

**Results:** A total of 92 children aged 5 to 18 years were recruited, 50% male and 50% female. Majority (41.6%) belonged to the 10 to 14 years age group, while 21.8% were less than ten years of age. There was no significant relationship between fasting blood glucose values and type of HAART regimen, duration of HIV infection, family history of diabetes, age or gender. There was however, a significant relationship between fasting blood glucose levels and duration of treatment on HAART > 6 years (p<0.05).

**Conclusion:** HIV-positive children on HAART for more than six years may be at an increased risk of blood glucose abnormalities.

**Recommendation:** Monitoring of blood glucose of children on HAART for six years and above may be employed in resource-constrained settings for diabetes screening.

**DOES HIV INFECTION AFFECTS GROWTH AND PUBERTY OF CAMEROONIAN CHILDREN?**

*Mbano RC, Ngo Um Sap S, Edongue M, Ndombo PK, Coutant R*

**Objectives:** To evaluate growth and pubertal development of children with HIV infection under highly active antiretroviral therapy (HAART).

**Methods:** Through a cross-sectional study, we included 74 children aged 9 to 17 years and under HAART, followed up for at least 6 months in two care units in Cameroon. Weight and height were measured and reported to 2007 WHO curves for 5 to 19 years. We assessed pubertal development with Tanner stages. We looked into association between HIV infection characteristics, regimen of HAART and growth/puberty abnormalities with multivariate analysis. We used Mann U Whitney test to compare median values with a p-value ≤ 0.05 being significant.

**Results:** The median age was 13 years. Stunting was mainly reported in boys. Wasting affected 9.7% of adolescents. The age of pubertal onset was in the normal range in boys and girls. Adolescents aged 12 to 14 years (OR 3.4 [IC à 95% 1.3 – 8.8]; p= 0.012) with past history of opportunistic infection and under HAART with protease inhibitors were more likely to have stunting.

**Conclusion:** In our setting, as for growth, stunting was more reported than wasting in children under HAART. Furthermore, pubertal development was normal in all patients. This may reflect the benefits of HAART on children with HIV infection.
AGE AT MENARCHE AND RELATED FACTORS AMONG SECONDARY SCHOOL GIRLS IN URBAN YAOUNDE - CAMEROON

Fomenky N, Nguefack FD, Mungai L, Ngoh RB, Ngo Um Sap S, Mbanya JC

ABSTRACT

Objectives: To determine age at menarche and assess its determinants among adolescent secondary school girls in urban Yaoundé, Cameroon.

Methods: Cross-sectional, descriptive and analytic study consisting of 767 post-menarcheal secondary school girls aged 13-18 years and living in an urban area of Yaounde, selected from 4 secondary schools. We performed a multistage random sampling. Age at menarche was obtained through self-reported date of menarche. We also collected data concerning their current sociodemographic status, anthropometric parameters and age at menarche of mothers.

Results: The mean ages (95% CI) at time of data collection was 16.51 ± 1.2; (Min – Max = 13 – 18 years). The mean age of menarche was 12.65 ± 1.48 years (95% CI: 12.54 – 12.75). The mean age of mothers of participants was 41.9 +/- 6.2 years and mean age at menarche of these mothers was 13.7 ± 1.7 years. There was a weak positive correlation between age at menarche of mothers and their daughters with a 1.1 year difference between the means. Of the girls, 25.7% were overweight 5.9% obese for age with a median age at menarche lower in obese girls (12.3 years), compared with those with normal BMI (12.6 years). Physical exercise did not have an impact on age at menarche. Single parenting or living with one parent was a factor associated with earlier age at menarche. Children who lived with both parents had a mean age at menarche of 12.6 (11.8-13.6) years while those living with one parent onset was at 12 years (11.01-13.1)

Conclusion: Mean age at menarche in adolescent girls in urban Yaoundé was 12.65 ± 1.48 years. Mother's mean age at menarche 13.7 ± 1.7 years. Factors associated with earlier onset menstruation were being obese or overweight and living with a single parent.

COMPARISON OF PUBERTAL DEVELOPMENT BETWEEN SICKLE CELL DISEASE PATIENTS AND SUBJECTS WITH NORMAL HAEMOGLOBIN.

Oyewole OA, Babatunde OT, Oduwate OA, Fetuga MB, Zacharin M, Ogundeyi MM, Fadebola MB

Background: Sickle cell disease (SCD) is associated with delay of pubertal development by about two years.

Objective: To compare the development of puberty among Sickle Cell disease patients with subjects with normal haemoglobin (AA).

Methods: A hospital- based comparative cross-sectional study conducted from August 2015 to March 2016 within 2 Local Government Areas in Ogun State, Nigeria. 309 children aged 6-18 years were recruited, but only 272 completed the study. Information on demography, family characteristics, menstrual history, and socioeconomic status of parents was obtained using a proforma. Pubertal staging was assessed using gender-specific Tanner staging charts, and venous blood samples taken for hormonal assay from those in puberty. Blood samples were analysed using RapidR Labs EUSA kits and result interpreted in relation to age related reference values. X ray of left hand showing wrist was done and read using Guerlich and Pyle atlas to determine the skeletal maturity of subjects and controls. Data analysis was done using SPSS 22.0 version and Microsoft Excel R 2010.

Results: The mean age for the subject group was 10.62±3.07 years while for the control group was 10.20±2.98 years, M: F ratio was 1:1. Onset of breast development
(B2) in the subject group was at a mean age of 12.3±1.71 years and onset of pubic hair (PH2) development was at a mean age of 13.2±1.81 years, compared to the control group which attained B2 at a mean age of 9.8±1.85 years and PH2 at a mean age of 10.9±1.67 years. Males in the control group also attained puberty earlier than patients with sickle cell anaemia. Patients with sickle cell anaemia attained menarche at a mean age of 14.1±2.1 years compared to a mean age of 12.3±1.8 years in the control group. Mean LH was 8.29±3.73 mIU/ml and mean FSH was 5.81±10.61 mIU/ml in patients with sickle cell anaemia and were higher when compared to mean LH of 3.17±0.6 mIU/ml and mean FSH of 3.85±3.88 mIU/ml in the control group. However, oestradiol and testosterone were higher in the control group. There was delayed skeletal maturity in the patients with sickle cell anaemia which was statistically significant with a p value <0.05.

Conclusion: Patients with SCD have delay in attainment of puberty compared to matched Hb AA controls. Early diagnosis of delayed puberty in SCD patients will allow for quick interventions and improved outcomes.

DELAYED PUBERTY IN NON-CLASSIC CONGENITAL ADRENAL HYPERPLASIA: A CASE REPORT
Moronkalo OA, Oyenusi EE, Oduwale AO

ABSTRACT
Introduction and objective: Non-classic congenital adrenal hyperplasia (CAH) due to 21-hydroxylase deficiency (NCALD) is a mild form of CAH. At birth, females appear normal, thus they present later in life with symptoms of androgen excess. These include hirsutism, frontal baldness, delayed menarche (first period), menstrual irregularities, and infertility. Non-classic CAH may pose a diagnostic dilemma as cortisol levels may be normal.

Methods and results: An adolescent re-presented at 16 years due to delayed puberty. She had earlier presented when she was 12 with complaints of a protrusion from her vagina. She could not ascertain the onset of the protrusion. At birth, mother noticed the genitals appeared “swollen” however she was reassured by the attending physician and therefore raised the child as female. Parents are not related. The mother had only her routine antenatal medication and had no illness in pregnancy warranting intake of any other medication. There were no signs of maternal virilization during pregnancy.

Examination revealed a healthy child, with a female voice. Breast development was B1. External genitalia had a female pattern of hair distribution at P3. Phallus measured 3cm ending with a glans but had no opening (Prader stage 3). Vaginal orifice noted, there were no palpable gonads. BP= 96/70 mmHg (normal for age).

Laboratory investigations at first presentation 4 years ago showed increased 17 hydroxy progesterone and testosterone while cortisol was low. Present investigations still show, increased 17 hydroxy progesterone and testosterone FSH and LH but now with normal levels of plasma cortisol. Oestradiol was low while electrolytes were normal. Ultrasonography 4 years ago showed absent ovaries and uterus however a repeat done presently revealed rudimentary ovaries and uterus. No bair body was seen on buccal smear. Patient was commenced on hydrocortisone 4 years ago but defaulted and re-presented at 16 years because of absent breasts and delayed menarche. She is currently awaiting results of karyotype.
EPIDEMIOLOGICAL AND CLINICAL PROFILE OF PAEDIATRIC HYPOTHYROIDISM IN CÔTE D’IVOIRE: ABOUT 12 CASES
Micondo KH, Rhéodor AJ, Agbré ME, Cyprien K, Tenédia S, Dainguy ME, Folquet A.

ABSTRACT

Introduction: Hypothyroidism is a common endocrine disease in children after diabetes and the main cause of preventable mental retardation. However in our context, systematic screening has not done and data on this disease are rare.

Objective: Was to describe the epidemiological, clinical and evolutionary features of children hypothyroidism in Côte d’Ivoire.

Methods: This was a retrospective descriptive study concerning all the children followed-up for hypothyroidism, biologically confirmed, carry out over a period of 15 years, from 2003 to 2018. Data were collected from their medical folder in three reference health centre of Abidjan. Socio-demographic data such as age, sex and consanguinity of the parents; past medical history looking; clinical information (circumstances and signs at the time of diagnosis); paraclinical explorations (TSH, free T4 and/or free T3, cervical ultrasound, karyotype, etc.) and the evolutionary mode of children were collected. Excel 2007 software for window was used for data analysis.

Results: During this period 12 children were recruited. The mean age of our patients was 5 years 3 months (4 months-15 years). The average age of diagnosis of the disease was 14.87 months (3 days to 96 months). More than half (58.33%) of the cases were diagnosed after the age of 6 months. There was a gender codominance. No consanguinity was found among parents. In 50% of cases, comorbidity was noted and diseases encountered were mainly Down syndrome, cryptorchidism, hypogonadism and atresia of biliary tract. At the period of diagnosis, we found in more than half of cases, respiratory disorders (75%), generalized hypotonia (75%), constipation (66.67%) and mental retardation (50%). The mean value of TSH was 24.07 microU/ml (5.95 to 100 microU/ml) with an average free T4 of 11.84 pmol/l. The etiological was mainly the disorders of hormonogenesis. All cases of hypothyroidism were treated by Levothyroxine with initial dose ranging from 25 to 50 micrograms daily. In more than half (58.33%) cases, the period of euthyroidism was unknown. Mental retardation (33.33%) were noted in the early stages of complications and one case of death was reported.

Conclusion: The gravity of paediatric hypothyroidism is associated with the mental retardation and the delay of growth. It’s necessary to advocate for the introduction of systematic screening and reduction of the cost of biological tests to detect early and
MEASURING URINARY IODINE CONCENTRATION IN CHILDREN USING THE SIMPLE PHOTOMETRY METHOD: A PRELIMINARY RESULT.
Yarhere IE, Jaja T, Nte AR

ABSTRACT

Introduction: The W.H.O. recommended iodisation of salt as a means of eradicating iodine deficiency disorder and Nigeria complied with this directive and has been iodine sufficient for over 2 decades. Measuring iodine is tedious and cumbersome.

Objective: To test a new machine for its adequacy in measuring urinary iodine.

Method: we used a new machine to assay urinary iodine in a set of children. Ninety-eight children in the children-out-patient clinic who had not taken drugs that affect the thyroid gland after obtaining informed consent, gave urine samples that were assayed for iodine using the Hanna instrument HI 96718 automated photometer. The median urine iodine concentration was determined for the population and compared with the recommended median for cut off as iodine sufficiency and excess in a population.

Results: The machine was able to record urine iodine from 78 of the 98 samples obtained and the median iodine concentration in the population was 0.5mg/L, which was higher than the level recommended for adequate iodine. Though more females had urine iodine concentration less than the population median, the difference was not significant, p = 0.329.

Conclusion: This machine is able to assay urine iodine from a population and can be employed in population studies.

CONGENITAL HYPOPARYTHYROIDISM MISDIAGNOSED AS INFANTILE SEIZURE.
Umar IU, Aliyu I, Jahun MG, Sabo UA, Gwarza GD

ABSTRACT

Introduction and objective: The most prominent feature of neurologic dysfunction in children is the occurrence of seizures. Determining the underlying etiology for the seizures is critical. Retiology determines prognosis and outcome and guides therapeutic strategies.

Methods and Results: A three months old infant referred to our endocrine unit with recurrent seizures, body stiffness, noisy breathing and bilateral cataract. He was previously been diagnosed with epilepsy in a syndromic child. Biochemical investigation revealed hypoparathyroidism, brain MRI was suggestive of decrease myelination for age, EEG revealed normal study, and a diagnosis of congenital hypoparathyroidism was confirmed. After calcium and vitamin D replacement, the infant did very well and is seizure free off antiepileptic therapy.

Discussion and conclusion: This case highlights the occurrence of recurrent seizures in congenital hypoparathyroidism; the occurrence of symptomatic seizures due to factors other than epilepsy; and the importance, in the correct clinical setting, of considering alternative, and sometimes treatable, causes of seizures other than epilepsy.
AN UNUSUAL PRESENTATION OF GRAVES DISEASE COEXISTING WITH A LIVER MALIGNANCY: A CASE REPORT
Okechukwu C.

ABSTRACT

Introduction and Objectives: Graves’ disease is an autoimmune disorder caused by stimulating antibodies to the thyroid stimulating hormone (TSH) receptor on thyroid follicular cells. It is the most common cause of hyperthyroidism and has been associated with an increased risk of cancers. We aimed at highlighting the clinical presentation of Grave’s disease with a liver malignancy in an 11-year-old male.

Methods and results: IC was an 11-year-old male who presented with weight loss of 2 years, bulging eyes of 22 months, neck swelling of 14 months and abdominal swelling of 1-month duration. He also had polyphagia, polyuria, polydipsia, excessive sweating, heat intolerance, dry skin, tremor, voice change, and general body weakness. A diagnosis of hyperthyroidism was made 4 months into illness at a general hospital and he received propranolol for 1 year. On examination, he was cachectic, had bilateral proptosis with a non-tender neck mass measuring 12cm by 6cm. He had a grossly distended, hard, nodular liver extending 20cm below the costal margin. A diagnosis of malignant transformation of Graves’ disease with possible secondaries to the liver was made. Thyroid functions tests were in keeping with hyperthyroidism and abdominal ultrasound scan revealed a liver with multiple masses, septations and cavitations, with an echo pattern suggestive of a hepatoblastoma. Aspects of liver tissue biopsied showed fatty changes with no malignant cells seen. He was managed conservatively with propranolol and carbimazole while a repeat liver biopsy was planned in the next 3 months. He was discharged home fairly stable, but died a week later.

Conclusion: A vigilant effort should be undertaken to diagnose the liver condition of patients who present with hyperthyroidism and symptoms of liver malignancy so that appropriate therapy can be promptly initiated.

CLITORAL SIZES AND ANOGENITAL MEASUREMENTS IN TERM FEMALE INFANTS IN SAGAMU, NIGERIA.
Radekayo AO, Fetuga MB, Jarrett DO, Ogunlesi TA Chanoine JP, Oba-daini OO

ABSTRACT

Introduction: Previous studies suggest significant ethnic and racial differences in clitoral sizes and anogenital distances in the newborn. References are useful in diagnosing abnormalities.

Objectives: This study aimed to document normative data on clitoral sizes and anogenital distances of apparently normal term female infants in Sagamu and correlate findings with anthropometric parameters of the infants as well as compare with previous studies.

Methods: The study was a multi-center, cross-sectional descriptive research carried out among 317 female term infants within the first 72 hours of life. Interviewer-based questionnaire was applied to obtain sociodemographic data, pregnancy and birth history. A sliding digital caliper was used for measurement. Data analyses was with SPSS version 20.0.

Results: The mean clitoral length was 6.7 ± 1.6 mm while the mean clitoral width was 5.6 ± 0.8 mm. The mean fourchetto-clitoral distance, ano-clitoral distance and
ANO-FOURCHETTAL DISTANCE WERE 21.9 ± 2.1 mm, 35.5 ± 2.5 mm AND 17.0 ± 2.6 mm RESPECTIVELY. THE CLITORAL LENGTH AND WIDTH HAD INSIGNIFICANT CORRELATION WITH THE WEIGHT, LENGTH, HEAD AND CHEST CIRCUMFERENCE WHILE THE ANO-CLITORAL AND ANO-FOURCHETTAL DISTANCES SIGNIFICANTLY CORRELATED WITH THE ANTHROPOMETRIC PARAMETERS.

CONCLUSION: THE MEAN VALUES RECORDED IN THIS STUDY WERE HIGHER THAN OBSERVED IN MOST PREVIOUS STUDIES. THE NORMATIVE DATA GENERATED FROM THIS STUDY WILL AID EARLY DIAGNOSIS AND TREATMENT OF LIFE-THREATENING CONDITIONS ASSOCIATED WITH ABNORMAL ANO-GENITAL SIZES IN SAGAMU INFANTS.

OUTCOME OF FEMINIZING GENITAL RECONSTRUCTION IN FEMALE GENDER ASSIGNED DISORDER OF SEX DEVELOPMENT IN A LOW-INCOME COUNTRY

Ekenze SO, Chikani U N, Chikani Ugo

ABSTRACT

INTRODUCTION: GENITAL RECONSTRUCTION IN PATIENTS WITH DISORDERS OF SEX DEVELOPMENT (DSD) CAN BE DANTING ESPECIALLY IN A DEVELOPING COUNTRY WHERE ADDITIONAL CHALLENGES EXIST.

OBJECTIVES: THIS STUDY EVALUATES THE OUTCOME OF GENITAL SURGERY IN PATIENTS WITH DSD ASSIGNED FEMALE SEX.

METHODS: WE DID RETROSPECTIVE ANALYSIS OF 25 CASES OF FEMALE SEX ASSIGNED DSD MANAGED IN TWO TERTIARY CENTRES IN SOUTHEAST NIGERIA.

RESULTS: THE PATIENTS PRESENTED AT MEAN AGE OF 3.7 YEARS (RANGE 2 DAYS – 30 YEARS), WITH 15 (60%) CASES REARED AS FEMALE AND 10 (40%) REARED AS MALE BEFORE PRESENTATION. THE PREDOMINANT PHENOTYPE WAS PHALLOIDITY WITH EMPTY FUSED/UNFUSED LABIOSCROTUM AND URETHRA OPENING IN THE LABIOSCROTUM OR PERINEUM IN 21 (84%) PATIENTS. EVALUATION REVEALED FEATURES SUGGESTIVE OF 46XX DSD IN 21 (84%) PATIENTS, OVOTESTICULAR DSD IN 2 (8%), AND ANDROGEN INSENSITIVITY IN 2 (8%). A TOTAL OF 10 CASES REQUIRED SEX REASSIGNMENT AFTER EVALUATION. THE FEMINIZING GENITAL PROCEDURES UNDERTAKEN WERE CLITOROPLASTY AND VULVOPLASTY (12), CLITOROPLASTY, VULVOPLASTY AND CUTBACK VAGINOPLASTY (8), AND ARCHIDECTOMY, PHALLOPLASTY, LABIOSCROTAL REDUCTION VULVOPLASTY, AND COLON SUBSTITUTION VAGINOPLASTY (4). ONE PATIENT IS YET TO HAVE SURGERY AS THE PARENTS REFUSED THE ASSIGNED SEX. AFTER AN AVERAGE FOLLOW UP DURATION OF 3.1 YEARS, 4 PATIENTS DEVELOPED PROCEDURE RELATED COMPLICATIONS, 3 REQUIRED SOCIAL READJUSTMENT, AND 2 PATIENTS DEVELOPED GENDER DYSPHORIA.

CONCLUSION: FEMINIZING GENITAL PROCEDURES FOR DSD MAY BE ASSOCIATED WITH PROCEDURE RELATED COMPLICATIONS AND NON-SURGICAL COMPLICATIONS. IMPROVING SURGICAL TECHNIQUE, AND ADDRESSING THE CHALLENGES OF DELAYED PRESENTATION AND FIXATION ON MALE GENDER MAY IMPROVE OVERALL OUTCOME.
ABSTRACT

Background: Testosterone is important in the development of the male reproductive organs and the anogenital distance (AGD). The relationship between the level of serum testosterone and the AGD has not been fully elucidated. Could AGD measurement be used as surrogate for testosterone level in resource constraint setting?

Objective: To determine the serum testosterone level, AGD, the relationship between AGD and serum testosterone levels in term newborn and the possibility of AGD as surrogate for testosterone level.

Method: Two hundred and forty healthy term (37 completed weeks -42 weeks of gestation) neonates within the first 72 hours of life were recruited. For each neonate, examination of the genitalia including position of the urethral opening was done and the AGD, birth weight, birth length, head circumference were determined. The AGD was measured with a digital calliper. Blood was collected from each neonate between 0530 and 0800 hours to allow for consistency within the circadian rhythm. The total serum testosterone level was determined using ELISA kits. Ethical approval was obtained from the Hospital’s ethics committee and written informed consent was obtained from the parents of the recruited babies. Babies with dysmorphic features or external genitalia anomalies were excluded. Data were analysed using the Statistical Package for Social Sciences (SPSS) for Windows version 20.

Results: A total of 240 neonates with a mean (SD) gestational age of 38.5 (1.3) weeks were included in the study. There were 124 (51.7%) males and 116 (48.3%) females. The mean (SD) AGD of the neonates was 19.7 (7.7) mm. The mean (SD) AGD of males (26.5 (3.7) mm) doubles that of females (12.4 (2.3) mm) and was statistically significant (t = 35.3, p = 0.001). The mean (SD) of total serum testosterone levels was 267.1 (204.8) ng/dl, with males level significantly higher than females (357.4 Vs 170.6 ng/dl; t = 7.9, p = 0.000). The Pearson’s correlation coefficient (r) between total serum testosterone levels and AGD was positive (r = 0.425, p = 0.01) though stronger in male neonates than female neonates. Linear regression equation between the serum testosterone and AGD was: Total Serum testosterone (ng/dl) = 44.3 + 11.3*(AGD (mm)).

Conclusion: The positive correlation between the total serum testosterone and AGD may support that AGD measurement may be used to estimate the total serum testosterone value, particularly in resource constraint environment like Nigeria.
ADRENAL CRISIS SECONDARY TO CONGENITAL ADRENAL HYPERPLASIA IN A NEONATE: A CASE REPORT

Serwah Bar

ABSTRACT

Introduction and objectives: Congenital adrenal hyperplasia (CAH) is a group of inherited autosomal recessive disorders of adrenal steroidogenesis. Screening studies in Caucasians and Asians indicate an incidence of classical 21-hydroxylase-deficient CAH as 1 in 13,000 to 1 in 54,000 live births. Similar data is lacking in most developing countries. This is a case report of a neonate with genital ambiguity secondary to CAH who, despite being delivered and admitted during the early neonatal period in a tertiary hospital, remained undiagnosed until she was re-admitted with adrenal crisis.

Methods and results: A 5 week old female infant was admitted to the Neonatal intensive Care Unit (NICU) of a tertiary hospital in Ghana with a 3 day history of fast breathing with poor feeding. The infant had been admitted to the unit earlier after delivery and was managed as Mild Birth Asphyxia and Presumed sepsis and discharged home after 5 days in a stable condition. There was no family history of consanguinity, unexplained neonatal death, infertility or maternal virilization during pregnancy. Physical examination revealed an irritable, hypothermic, tachypnoeic and tachycardic infant with signs of shock. The genitalia looked ambiguous with enlarged labioscrotal folds without any palpable gonad and a stretched phallic length of 2 cm. There was no vestibule and the urethral opening was in the perineum. Laboratory investigations showed high levels of 17-hydroxyprogesterone (971 nmol/l), hyponatraemia (110 mmol/l), hyperkalemia (8.9 mmol/l), an elevated BUN/Creatinine ratio and a blood gas picture reflecting a severe metabolic acidosis with respiratory compensation. Blood sugar was normal. Karyotype was 46, XX and abdominopelvic ultrasound reported a phenotypic female appearance.

A diagnosis of a 46, XX child with Adrenal crisis secondary to Congenital Adrenal Hyperplasia was made. The infant had to be given several normal saline boluses, stress doses of hydrocortisone and antibiotics. Oral Fludrocortisone was started on the 7th day and baby was weaned off stress doses of hydrocortisone and discharged home on oral Hydrocortisone, fludrocortisone tablets and Salt supplements after 10 days of admission.

Discussion and conclusion: Primary adrenal insufficiency, as occurs in CAH, causes an increase in adrenocorticotropic hormone (ACTH) concentrations due to a lack of negative feedback to the pituitary. Increased ACTH concentration stimulates hyperplasia of the adrenal gland and increased production of adrenal steroids proximal to the enzyme block. These increased concentrations of progesterone and 17-hydroxyprogesterone (170HP) are shunted into the adrenal androgen pathway and lead to increased concentrations of dehydroepiandrosterone and androstenedione, which are then peripherally converted to testosterone. The androgen excess causes virilization of females including clitoromegaly and in its most severe form, masculinization of the external genitalia. Mineralocorticoid deficiency leads to renal salt wasting, which results in severe dehydration if left untreated. The clinician must have a high index of suspicion especially in males where the absence of the red flag ‘genital ambiguity’ may lead to a misdiagnosis and subsequent morbidity and mortality. Despite the presence of genital ambiguity in this neonate, the diagnosis was still not made until patient finally developed shock.

It has been hypothesized that in developing countries where newborn screening is not carried out and the health delivery system is not robust children with CAH probably die without the diagnosis ever being made, and the cause of death is erroneously attributed to other commoner conditions like Septicaemia and Pneumonia. However, in 46 XX newborns, it would be thought that the diagnosis will be glaring since there is usually genital ambiguity. However, it appears that despite the genital ambiguity, some babies may still fall through the cracks in the health system. This underlines the importance of including genital examination in the clinical assessment of neonates and children.
Participants concentrating in one of the sessions in summer school

Professor. Abiola Oduwole explaining to the participants while the high table is looking on

LOC chairlady smiling "IT WAS A SUCCESS"