**International**

**G01 DETECTION OF LOW BIRTH WEIGHT NEWBORNS BY FOOT LENGTH AS PROXY MEASURE OF BIRTH WEIGHT**

S. S. Shah1, P. S. Shrestha2, F. C. Gami2.
1 Queen Elizabeth II Hospital, Wolverhampton, City, UK; 2Department of Paediatrics and Child Health, Institute of Medicine, Tribhuvan University, Kathmandu, Nepal, India.

**Background:** The majority of births in rural areas of developing countries take place at home. Lack of weighing facilities make early and reliable identification of low birth weight (LBW) babies difficult.

**Aims:** To find out the correlation between birth weight and foot length. To detect LBW newborns by using foot length measurement as proxy measure of birth weight.

**Methods:** One thousand live newborns of gestational ages 26–44 weeks were studied at a hospital in Nepal. The foot length, crown–heel length, head circumference, chest circumference, and birth weight were recorded within 24 hours of birth.

**Results:** Foot length measurement showed the highest correlation (r = 0.92) among various anthropometric measurements with birth weight. The correlation between foot length and other anthropometric parameters were higher in preterms than in term babies. The formula, length = (foot length × 6.5) ± 20 mm correlated positively. The mean birth weight of newborns was 2931 (SD 464) g. The incidence of LBW babies was 12.6%. The results showed a sensitivity of 70.6%, a specificity of 98.5%, and a positive predictive value of 89.7% for identifying LBW newborns. For very LBW newborns the sensitivity, specificity, and positive predictive value were all 100%.

**Conclusion:** If implemented on a larger scale, this low cost technology of foot length measurement can significantly enhance the yield of identification of LBW babies born at home and babies can be managed thereafter accordingly. When it is difficult to weigh or measure the length accurately, foot length can serve as a useful measurement to assess a baby quickly, especially in preterms nursed in incubators.

**G02 AFRICAN SCHOOLS RESPOND TO HIV**

E. S. Cooper. Partnership for Child Development, Department of Infectious Disease Epidemiology, Imperial College School of Medicine, London, UK.

**Aims:** Education has been dubbed “the social vaccine” against HIV. The school age years, encompassing the fraction of a population with lowest prevalence, have been called “the window of hope”. But HIV destroys education, for example through absence and death of teachers and lack of access to school for the growing numbers of orphans and vulnerable children (OVC). The HIV pandemic needs approaches that are not confined to the health sector. We aim to assist the education sector to plan timely responses in order to play this crucial part in limiting the pandemic and its effects.

**Method:** The Inter-Agency Task Team (IATT), a grouping of UN agencies with major funding from the World Bank, has initiated Accelerating the Education Sector’s Response to HIV/AIDS in Sub-Saharan Africa. Since 2002, sub-regional workshops have been held in Kenya, Gabon, Nigeria (1 federal, 3 for groups of states), Mozambique, Ethiopia, Ghana, Zambia, and Senegal. Knowledge is exchanged in these workshops, but the principal product is planning, with detailed measurable educational plans at sub-regional, national, provincial, and district level. Our group organises and runs these workshops. Facilitated thematic groups, organised as desired by ministries of education but typically around planning for (1) increased staffing needs; (2) HIV prevention through curriculum design and teaching; (3) increasing OVC access; and (4) school policies on staff treatment and employment protection deliver prioritised aims, objectives, activities, and identified resources. These are then incorporated into specific plans for each state, province, or district.

**Results:** The administrators of education at all levels have identified their priorities, objectives, and means of obtaining them. These always include one immediate task to be achieved within a few months. This process has led to the first incorporation of plans for OVC to access education and for collaboration with social welfare on this, also with health on preventive life skills in the curriculum. There has also been an increase in education sector use of Multi Country HIV/AIDS Program (MCAP) funds allocated to governments but previously left untapped. Nevertheless, we have so far been able to show few tangible results in educational provision, for example for the OVC.

**G03 INCIDENCE AND CONSEQUENCES OF CONGENITAL ABNORMALITIES AMONG HOSPITAL BORN INFANTS IN ENTEBBE, UGANDA**

C. Tann1, M. Kiggundu2, B. Ayikya2, D. Mabey2, M. Mwango3, J. Whitworth4, A. Elliott4. 1Tower Hamlets Primary Care Trust/Barts and the London NHS Trust, London, UK; 2Entebbe Hospitals, Entebbe, Uganda; 3London School of Hygiene and Tropical Medicine, London, UK; 4Uganda Virus Research Institute/London School of Hygiene and Tropical Medicine, Entebbe, Uganda

**Aim:** Relatively little is known about the health burden of congenital abnormalities in sub-Saharan Africa. This study aims to examine the incidence of congenital abnormalities and their association with other adverse perinatal outcomes among hospital born infants in Entebbe, Uganda.

**Method:** Information was recorded with regard to the pregnancy, delivery, and birth outcome for all women delivering at Entebbe General Hospital between February and July 2003. All newborns, whether live or stillborn, were examined externally after delivery for the presence of congenital abnormalities, which were then classified using the 10th edition of the International classification of diseases. Late foetal and early neonatal deaths were recorded and perinatal mortality calculated according to WHO definitions.

**Results:** Records were entered for 1026 deliveries (1115 newborns). The crude perinatal mortality rate was 54.6/1000 total births (56/1026) and the prevalence of low birth weight (LBW) infants (<2.5 kg) was 104/1049 (10.0%). LBW was strongly associated with increased perinatal mortality (OR 11.4 (95% CI 6.0 to 20.3), p < 0.0001) and was a contributing factor in 47% of all perinatal mortalities. The presence or absence of a congenital abnormality was recorded for 999 (89.6%) newborns. The incidence of congenital abnormalities among the study population was 17/1000 total births. Major and multiple congenital abnormalities occurred in 8.1/1000 births and 2.0/1000 births, respectively. Abnormalities affecting the musculoskeletal system were the most frequently seen, followed by those of the nervous system. Perinatal mortality among infants with a congenital abnormality was more than twice that seen among those without (117.6 ± 54.4 per 1000 births) but this association was not found to be statistically significant (OR 2.5 (95% CI 0.5 to 11.3), p = 0.24). No significant association between congenital abnormalities and LBW was seen (12.5% vs 9.6%, OR 1.35 (95% CI 0.3 to 6.1), p = 0.69).

**Conclusions:** Few studies to date have looked at the incidence of congenital abnormalities in sub-Saharan Africa. This study’s findings are likely to reflect a conservative estimate of the incidence of congenital anomalies in this population and suggest that these abnormalities may represent a significant contribution to infant morbidity and mortality in this setting.

**G04 PREVALENCE AND PERCEPTIONS OF ANAEMIA IN SCHOOL AGE CHILDREN IN A RURAL POPULATION IN NICARAGUA**

S. M. Reilly1, C. Lopez Rojas2, N. Spencer1. 1University of Warwick, Department of Postgraduate Medical Education., Warwick, UK; 2Community Health Leader, Managua, Nicaragua.

**Introduction and Aim:** Population prevalence of anaemia for children <5 years, adolescents, pregnant women, and adults has been internationally well researched. There are very little published data, however, on children aged 5–11 years. International strategies for addressing anaemia and iron deficiency in children have had little impact to date. This study aims to quantify the level of anaemia in the school aged child in the village of San Cayetano, rural Nicaragua, and also to qualitatively investigate community conceptions of anaemia and approaches to its management.

**Method:** Cross sectional point prevalence of haemoglobin level, for children in the study area, using the Hemocue system. Group discussions and individual structured interviews for relevant community members and randomly selected parents with thematic analysis of perceptions of anaemia, iron deficiency, diet, nutrition, and prevention/management strategies were done.

**Results:** 121 children participated; 56.5% of possible study population (age range 5.2–11.9, median 8.7; male 49%; female 51%, height Z score mean -0.44, SD 0.99, weight Z score mean -0.51, SD 1.04. Prevalence of anaemia (haemoglobin <11.5 g/dl) is 14.8% and significant risk factor for anaemia was adverse social factors. A total of
20 community members participating in the interviews advocated a variety of medicinal and health promotional strategies, combined with environmental change for prevention and management of anaemia in children.

Conclusions: This study shows that prevalence of anaemia in normal children in Nicaragua is relatively low, but significant. Management needs to be moved beyond the individual biomedical model to address community localised nutritional, environmental, and social factors for more effective management of this condition.

Ethical approval: Ministry of Health, Nicaragua; Warwick University, UK.


G05 THE SPECTRUM AND INCIDENCE OF NEURAL TUBE DEFECTS IN BABIES BORN IN OMDURMAN, SUDAN

M. A. Lewis1, G. Elsheikh2, S. Ibrahim2, J. A. Thorne1. 1Manchester Children’s Hospitals, Manchester, UK; 2Omdurman Maternity Hospital, Khartoum, Sudan

Background: While the incidence births of babies with open neural tube defects (NTDs) is falling in the USA and Western Europe, these congenital abnormalities remain a significant cause of morbidity and mortality in Africa. Before looking at the use of folic acid supplementation, we have attempted to define the magnitude of the problem in a hospital based population in Sudan.

Study Design: Prospective study of all patients born with open NTDs over a 12 month period in one hospital in Sudan. Index cases were compared with a consecutive group of deliveries of babies born without NTDs (control group = ~ 2 x index group).

Research Tools: Maternal questionnaire completed after delivery. Formal examination of all infants and follow up questionnaire for surviving infants at one year. Verbal consent to participation was obtained in all cases. Questionnaires were completed by a medical practitioner asking the mother the designated questions (many mothers illiterate).

Results: In the year from Feb 2003 to Jan 2004 there were 64 babies born with open NTDs. This gave an incidence of 3.5/1000 deliveries. NTDs were the most common abnormality noted at birth, the incidence of all other abnormalities coming to just 2.5/1000 deliveries. 24 babies had anencephaly. 33 were stillborn and there were 20 early neonatal deaths. Young maternal age (p < 0.0001), low maternal educational level (p = 0.0012), low paternal educational level (p = 0.0001), and a previous history of stillbirths (p = 0.0001) were all associated with NTD births.

No index case mothers or control mothers received pre-conceptional folic acid supplementation. Thirteen of 14 index patients who were stillborn or died within the first 24 hours of life had no evidence of reflection inhibition. 13 of 14 index cases had open NTDs. This gave an incidence of 3.5/1000 deliveries. NTDs were the most common abnormality noted at birth, the incidence of all other abnormalities coming to just 2.5/1000 deliveries. 24 babies had anencephaly. 33 were stillborn and there were 20 early neonatal deaths.

Conclusion: Delivery of babies with open NTDs remain a significant problem in Sudan. Poor socioeconomic status and a previous history of folate supplements. Thirteen of 14 index patients who were stillborn or died within the first 24 hours of life had no evidence of processing inhibition. 13 of 14 index cases had open NTDs. This gave an incidence of 3.5/1000 deliveries. NTDs were the most common abnormality noted at birth, the incidence of all other abnormalities coming to just 2.5/1000 deliveries.

G06 BREASTMILK ANTIBODIES THAT INHIBIT SECONDARY PROCESSING OF PLASMODIUM FALCIPARUM MEROZOITE SURFACE PROTEIN-1 IN NIGERIAN MOTHERS

O. Sadeinde1, F. M. I. Popoola1, A. A. Holder2. 1University of Ibadan, Ibadan, Nigeria; 2National Institute for Medical Research, London, UK

Previous work by others and ourselves has shown that in animal models as well as in normal human infections antibodies that inhibit the secondary processing of merozoite surface protein-1 (MSP-1) also inhibit erythrocyte invasion by merozoites. Thus, MSP-1 is an important vaccine candidate. We have also shown that the human antibodies do cross the placenta. In the present study, we have looked for processing inhibitory antibodies in the breast milk of Nigerian mothers. After obtaining informed consent, 5 ml blood and 5–10 ml expressed breast milk (EBM) were collected from 52 non-parasitaemic mothers whose infants had anencephaly. 33 were stillborn and there were 20 early neonatal deaths. Young maternal age (p < 0.0001), low maternal educational level (p = 0.0012), low paternal educational level (p = 0.0001), and a previous history of stillbirths (p = 0.0001) were all associated with NTD births.

No index case mothers or control mothers received pre-conceptional folic acid supplementation. Thirteen of 14 index patients who were stillborn or died within the first 24 hours of life had no evidence of processing inhibition. 13 of 14 index cases had open NTDs. This gave an incidence of 3.5/1000 deliveries. NTDs were the most common abnormality noted at birth, the incidence of all other abnormalities coming to just 2.5/1000 deliveries.

Conclusion: Delivery of babies with open NTDs remain a significant problem in Sudan. Poor socioeconomic status and a previous history of folate supplements. Thirteen of 14 index patients who were stillborn or died within the first 24 hours of life had no evidence of processing inhibition. 13 of 14 index cases had open NTDs. This gave an incidence of 3.5/1000 deliveries. NTDs were the most common abnormality noted at birth, the incidence of all other abnormalities coming to just 2.5/1000 deliveries.