ABSTRACTS

Metabolic Syndrome Among Healthy Children Aged 6 to 12 Years in Al Ain, United Arab Emirates

BACKGROUND AND OBJECTIVE: The United Arab Emirates (UAE) has one of the highest rates of diabetes in the world. Few data are available on the burden of metabolic syndrome (MetS) among young children. We determined the prevalence of MetS and its components in children 6 to 12 years old in Al Ain, UAE.

METHODS: As part of a global health project, "Developed and Developing Countries Partnership for Non-Communicable Disease (NCD) Prevention," 622 parents were invited to bring their children aged 6 to 12 years for assessment of NCD risk factors. A self-administered questionnaire was used to assess sociodemographic characteristics, physical activity, and dietary habits. Blood pressure, height, weight, waist circumference, fasting blood glucose, and plasma lipids were measured. BMI was calculated. Overweight was defined as BMI ≥85th and <95th percentile and obesity as BMI ≥95th percentile, according to 2000 Centers for Disease Control growth charts. We used waist circumference cutoff points (≥90th percentile) to define central obesity. MetS was defined according to the Adult Treatment Panel III criteria.

RESULTS: Of the 234 children (51.7% girls) surveyed, 11.1% were overweight and 13.3% were obese. The overall prevalence of MetS in children was 9.9%. The prevalence of MetS was higher (11.3%) in children aged 10 to 12 years than in those aged 6 to 9 years (8.3%). More girls (9.9%) had MetS than boys (7.9%). The burden of individual MetS components included central obesity (27.7%), hypertension (18.9%), dyslipidemia (6.84%), low high-density lipoproteins (47.7%), and high fasting blood sugar (1.7%).

CONCLUSIONS: The prevalence of the MetS is high among children in the UAE, particularly among girls. Of the individual components of MetS, central obesity in particular was very high.

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Patterns and Genetic Polymorphisms in Unconjugated Hyperbilirubinemia (Gilbert Syndrome)

BACKGROUND AND OBJECTIVES: Gilbert syndrome is an underdiagnosed clinical entity because >30% of patients are asymptomatic. The clinical and genetic patterns have not been fully elucidated. Several genetic association studies have linked a number of single nucleotide polymorphisms (SNPs) with unconjugated hyperbilirubinemia. We conducted the current study to investigate the different clinical presentations and to validate the association of SNPs with the development of hyperbilirubinemia in patients with Gilbert syndrome in the Kingdom of Saudi Arabia.

METHODS: Screening of patients attending the outpatient clinics identified 65 patients with Gilbert syndrome, who were enrolled in the study. Complete laboratory workup, abdominal ultrasound, and abdominal computed tomography were performed. Genotyping of 5 SNPs in 2 candidate genes was conducted in all patients with hyperbilirubinemia, in addition to 100 controls, by polymerase chain reaction restriction fragment length polymorphism, gene scan analysis, and direct DNA sequencing.

RESULTS: The study cohort included 27 male and 38 female patients (age range 12–32 years, mean 18 ± 12.8 years). The cohort included 40 Saudi, 12 Indian, 9 Jordanian, and 4 Filipino patients. Jaundice was the only manifestation in 45% of cases. Nonspecific symptoms such as abdominal cramps, fatigue, and malaise were reported in 40% of cases, and 15% of patients were asymptomatic. Genetic polymorphisms of the UGT1A1 promoter, specifically the −3279 T→G phenobarbital responsive enhancer module (rs4124874) and (TA)7 dinucleotide repeat (rs8175347) and the coding region variants (rs2306283 and rs4149056) of the OATP2 gene, were significantly higher among the cases than among the controls.

CONCLUSIONS: Gilbert syndrome should be suspected in patients with unexplained hyperbilirubinemia or nonspecific symptoms. The UGT1A1 polymorphisms and number of variants are associated with altered bilirubin metabolism and could be genetic risk factors for neonatal hyperbilirubinemia.

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"Magic Potion" to Tackle India's Silent Crisis: Severe Acute Malnutrition in Children

BACKGROUND AND OBJECTIVES: Every day, on average, 26 000 children <5 years of age die of malnutrition, mostly from preventable causes, and nearly all of them live in the developing countries. One-third of the malnourished children in the world live in India. Tackling malnutrition in children is a national emergency. Nearly 50% of children between 1 month and 5 years of age are malnourished, with a mortality

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rate among children <5 years old of ~36% in the state of Maharashtra. Malnutrition increases this rate almost fourfold. During the rehabilitation phase of severe acute malnutrition (SAM) management, a diet based on energy-dense local foods (EDLF) along with multivitamin and multimineral supplements given at regular intervals under supervision, with counseling and play therapy, results in rapid weight increases (>10 g/kg per day) in children with SAM in 14 days. This weight gain facilitates early discharge from inpatient care, reducing chances of secondary infections and subsequent mortality. This study aimed to determine catchup growth in children with SAM treated with EDLF, our "magic potion," in a hospital-based nutrition rehabilitation center (NRC).

METHODS: We conducted a prospective hospital-based interventional study at the NRC of a tertiary teaching government hospital in Pune, India. Data are from July 2012 to August 2013. We enrolled children between the ages of 1 and 60 months who met World Health Organization criteria for SAM. The children were started on a specially prepared food consisting of puffed rice, sugar, milk powder, oil, groundnut powder, and water in predetermined proportions to provide 75, 100, and then 150 to 200 kcal per 100 mL. Supervised feedings with daily weight monitoring and structured play therapy were implemented. The data were analyzed to assess the effect of this diet on the daily weight gain in each child.

RESULTS: Of the 120 children with SAM, 70% were girls, and the mean age was 14 months (range 1–60 months). Underlying systemic illness was seen in 73%; the most common were pneumonia and diarrhea with dehydration and shock. Risk factors for SAM were inappropriate feeding habits (60%; odds ratio [OR] = 2.02; 95% confidence interval [CI], 0.68–5.94), incomplete vaccination (55%; OR = 1.30; 95% CI, 0.45–3.72), and poverty (39%; OR = 2.28; 95% CI, 0.78–6.69). Mean weight gain on the prescribed diet (EDLF) was good (>8 g/kg per day) in 52%. Weight gain was higher by almost 40% in the absence of underlying systemic illness in any week. No mortality was noted during the study period. All mothers and caretakers confidently prepared the diet themselves at the time of discharge. Follow-up at 6 months showed steady weight gain in all.

CONCLUSIONS: The diet of EDLF was found to be suitable and cost-effective for nutrition rehabilitation of children with SAM, with good weight gain, as recommended by the World Health Organization. The cost of 100 g of this special feed is only 10 rupees (<25 cents) per 130 kcal, and it can be used for community management of SAM.

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Fecal Calprotectin During Treatment of Severe Infantile Colic With *Lactobacillus reuteri* DSM 17938: A Randomized, Double-Blind, Placebo-Controlled Trial

BACKGROUND AND OBJECTIVES: Fecal calprotectin level has been reported to correlate with inflammation in inflammatory bowel disease in adults, and recently its relationship with infantile colic has also been described. Fecal calprotectin is elevated in infants with hematochezia and possible allergic colitis. The objectives were to evaluate fecal calprotectin at the time of enrollment and its variation after 3 weeks of therapy with a probiotic (*Lactobacillus reuteri* DSM 17938) in infants with severe infantile colic admitted to our hospital for either hematochezia, food allergy, or eczema. This study also aimed to compare fecal calprotectin values in infants with infantile colic and symptoms of food allergy with those in healthy infants.

METHODS: Forty-three patients with severe infantile colic, diagnosed according to the Wessel definition, were prospectively enrolled; 25 received a probiotic and 18 received placebo. The study population was composed as follows: 23 (48%) boys, mean age at enrollment in the study 36.6 ± 11.9 days, 36 (75%) exclusively breastfed. At enrollment, mothers were told to avoid cow's milk in their diet. Clinical responders after study period were considered infants who had reduced crying time per day and whose calprotectin decreased by ≥50% compared with baseline. We measured fecal calprotectin levels in fresh stools of these patients before and after 3 weeks of therapy by using the Quantum Blue Calprotectin Rapid Test (Bühlmann Laboratories AG, Schönenbuch, Switzerland). During treatment clinical symptoms were assessed by parents, who used a diary to record time of infantile crying per day and stool characteristics. A group of 19 healthy controls were enrolled only to provide calprotectin values for comparison.

RESULTS: Forty-three infants (*L. reuteri* group, 25; placebo group, 18) completed the trial. A sustained clinical response after treatment with probiotic was observed in 17 (65.4%) treated patients; the average values of fecal calprotectin were 601 μg/g after therapy versus 920 μg/g before induction ($P < .05$). Posttreatment fecal calprotectin was significantly lower in responders than in nonresponders ($P = .012$). The control group showed a mean calprotectin value of 100 μg/g, significantly different from that of the colicky group ($P < .005$).

CONCLUSIONS: The administration of *L. reuteri* DSM 17938 significantly decreases crying time and fecal calprotectin level. Colicky infants have significantly higher calprotectin levels than healthy controls. Finally, fecal calprotectin assay after probiotic treatment with *L. reuteri* DSM 17938 can be

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