

Selected Abstracts of the 11th International Workshop on Neonatology

FROM THE WOMB TO THE ADULT

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concept is particularly interesting for the study of SS, which appears to be partially due to changes caused by the external environment.

AIM

The purpose of this study was to analyse by GC-MS urine samples collected from a court of patients affected by SS and compared with a control court matched with age and gender.

MATERIAL AND METHODS

In this study, 30 subjects affected by SS and 20 controls were enrolled. Urine samples containing an aliquot of sodium azide 1% were collected and stored (-80°C) at University of Florence, Italy. Afterwards, samples were analysed using an Agilent 5975C mass spectrometer interfaced to the GC 7820 equipped with a DB-5ms column (J & W), injector temperature at 230°C, detector temperature at 280 °C, helium carrier gas flow rate of 1 ml/min. The GC oven temperature program was 90°C initial temperature with 1 min hold time and ramping at 10°C/min to a final temperature of 270°C with 7 min hold time. 1 µL of the derivatized sample was injected in split (1:20) mode. After a solvent delay of 3 minutes mass spectra were acquired in full scan mode. Each acquired chromatogram was analysed by means of free software AMDIS (Automated Mass Spectral Deconvolution and Identification System) and NIST08 (National Institute of Standards and Technology's mass spectral database). A multivariate analysis was performed using metaboanalyst [3] by which a model PLS-DA was built using the classification of the two groups, pathological-controls.

RESULTS AND DISCUSSION

A preliminary investigation indicates 5 variables of importance (VIP) metabolites resulting principal discriminant between the two groups. Such compounds will be useful in the future for determining the most important pathways that are activated in SS. This preliminary analysis suggests that more research efforts should be devoted to identify a characteristic fingerprint for SS.

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SLEEP RESPIRATORY EVENTS AND CLINICAL PARAMETERS AND IN A GROUP OF OBESE CHILDREN

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INTRODUCTION

Obstructive sleep apnea in children is more frequently due to tonsil and adenoid hypertrophy. Children who are obese and have obstructive sleep apnea might continue to have breathing difficulties even after tonsils and adenoids removal.

POPULATION STUDY

The relationship between ambulatory clinical parameters and sleep respiratory events were assessed with a type III polysomnography in a group of obese children. A prospective respiratory sleep study was performed between 2013 and 2015 on 42 consecutive exogenous obese children.

METHODS

The tonsils and palate position were subjectively measured using a grading system. The Brouillette test was applied for scoring obstructive sleep apnea in children. An overnight limited-channel polysomnography was performed using a type III portable ambulatory device (SOMNOscreen™ PSN, SOMNOmedics GmbH, Randersacker, Germany). Correlation and linear regression analysis between sleep respiratory parameters (apnea-hypopnea index, respiratory disturbance index, mean SpO₂, oxygen desaturation index, % snoring and phase angle) and clinical parameters was performed. Statistical analysis was done using SPSS® Statistics 19.0 software for Windows®.

RESULTS

Statistical analysis showed that Friedman palate position correlated with respiratory disturbance index.

CONCLUSIONS

In conclusion, in our cohort of obese children, palate position was the best clinical parameter for predicting sleep respiratory disorders. Palate

position should be taken into account for the clinical evaluation of obese children.

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ECHOCARDIOGRAPHIC ASSESSMENT OF DUCTAL SIZE COMPARED TO BODY SURFACE AREA FOR MANAGEMENT OF PATENT DUCTUS ARTERIOSUS IN PRETERM NEONATES

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INTRODUCTION

Patent ductus arteriosus (PDA) is the most common congenital cardiovascular malformation in preterm neonates. Incidence is about 28% in very low birth weight (VLBW) neonates and rises up to 60% in extremely low birth weight (ELBW) neonates less than 28 weeks of gestational age (GA). While ductus arteriosus is important for fetal circulation, its persistence beyond transitional neonatal period is often associated with increased morbidity and mortality. Since there is no unanimous consensus on those infants who may benefit from intravenous ibuprofen, echocardiographic assessment of ductal diameter compared to allometric measures as body surface area (BSA) could be a potential predictor.

OBJECTIVES

The aim of this study is to evaluate an hemodynamically significant PDA after measuring the inner ductal diameter adjusted for BSA (according to Mosteller formula).

METHODS

Medical records of 37 ELBW (birth weight: 805 ± 135 grams; GA: 26 ± 2.2 weeks) and 22 VLBW (birth weight: $1,196 \pm 140$ grams; GA: 29 ± 1.78 weeks) neonates admitted from 1st January 2009 to 31th December 2014 to the Neonatal Intensive Care Unit of Di Venere Hospital, Bari, Italy, with diagnosis of PDA have been evaluate. The inner ductal diameter (cm) measured by echocardiography within 48 hours of life in left parasternal short axis view of great vessels, as reported in the medical record, has been retrospectively indexed for BSA (m^2) in each patient.

RESULTS

The average ratio between inner ductal caliber and BSA associated to a spontaneous closure was $1.6 \text{ cm}/m^2$ in ELBW (8%) as well as in VLBW (27%) neonates; the same ratio in those responsive to a

single course of ibuprofen (55%) was $2.4 \text{ cm}/m^2$ and $2.2 \text{ cm}/m^2$, and a ratio of $2.6 \text{ cm}/m^2$ and $1.9 \text{ cm}/m^2$ was found in neonates who required a second course of ibuprofen in ELBW and VLBW respectively. In addition those neonates who had the ratio ranging from 2.6 to $3.2 \text{ cm}/m^2$, all in ELBW group, were unresponsive to ibuprofen and underwent surgical closure.

CONCLUSION

The ratio between inner ductal caliber and BSA greater than $1.6 \text{ cm}/m^2$ seems to highly correlate with hemodynamically significant PDA in both ELBW and VLBW. Differences in ductus arteriosus closure and ibuprofen effectiveness by birth weight populations have been observed. According to these results, in VLBW and ELBW neonates, echocardiographic measurement of inner ductal caliber and the calculated ratio with BSA would be a potential predictor of hemodynamically significant PDA that could benefit from pharmacological closure with ibuprofen treatment.

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METABOLIC PROFILE IN ADOLESCENTS AND YOUNG ADULTS BORN AT DIFFERENT GESTATIONAL AGE

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BACKGROUND AND AIMS

Prematurity is associated with an increased risk to develop metabolic syndrome in the adult age. Implicated factors still need to be elucidated. The aim was to investigate gestational age (GA)-related metabolic differences in a cohort of young adults born at term and preterm.