

PS-032a **PERFUSION INDEX AND PULSE OXIMETRY SCREENING FOR SEVERE CONGENITAL HEART DISEASE IN NEWBORN INFANTS. RESULTS FROM A COLLABORATIVE ITALIAN STUDY**

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10.1136/archdischild-2014-307384.328

Background Pulse oximetry (POX) is gaining ground as a screening test for severe congenital heart disease (CHDs) but its sensitivity towards aortic coarctation is low. Pulse oximetry-derived perfusion index (PI) has been proposed as a tool to detect critical left heart obstruction but has never been studied prospectively.

Aim To evaluate the efficacy of a neonatal screening combining PI and POX in a large population and to assess the impact of the test in hospitals with different level of care.

Methods Collaborative prospective study in 16 Italian hospitals. Asymptomatic infants who had not received prior cardiac evaluation were tested before discharge (48–72HoL) for pre- and post-ductal SpO₂ and PI. Cut off: SpO₂ 3%, PI

Results 50244 infants were born during the study period (76.7% in tertiary hospitals). 180 CHDs were detected before screening (142 antenatally, 38 clinically). 42169 newborns were screened. 3 CHDs were identified (2 for low SpO₂, 1 coarctation for low PI). 4 cases (2 coarctations) were missed. False positive rate was 0.45% (0.27% for PI). While in tertiary hospitals 95% of CHDs were identified before screening, in 1°-2° level units only 28% were detected clinically and PI-POX screening added a 46% sensitivity to the sole physical examination.

Conclusion Pre-discharge PI-POX screening provides a significant benefit only in 1°-2° level hospitals, where the rate of clinical recognition is low.

PI is capable to identify cases of aortic coarctation that POX misses but needs further evaluation in populations with a higher rate of missed diagnoses.

PS-033 **WITHDRAWN**

Endocrinology and Metabolism

PS-034 **PLASMA COPEPTIN MAY NOT BE A SENSITIVE MARKER OF PERINATAL STRESS IN HEALTHY FULL-TERM GROWTH RESTRICTED FETUSES**

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10.1136/archdischild-2014-307384.329

Background and aims Vasopressin plays a crucial role in the endocrine stress response to a variety of diseases, including insulin resistance and diabetes. Copeptin reliably mirrors vasopressin levels and is considered a marker of acute endogenous stress and insulin resistance. Intrauterine growth restriction (IUGR) due to placental insufficiency is associated with chronic fetal hypoxia, and with a phase of enhanced fetal/early postnatal insulin sensitivity, followed by later insulin resistance.

Methods Plasma copeptin concentrations were determined by ELISA in 50 cord blood samples from well-characterised non-distressed asymmetric IUGR (n = 30) and appropriate-for-gestational-age (AGA, n = 20) singleton full-term pregnancies. Fetuses were classified as IUGR/AGA, based on customised birth-weight standards adjusted for significant determinants of fetal growth. Doppler studies were indicative of placental insufficiency.

Results Fetal copeptin concentrations were similar in IUGR cases and AGA controls. In the AGA group, fetal copeptin concentrations were elevated in cases of vaginal delivery (p = 0.003). No association was recorded between cord blood copeptin concentrations and maternal age, parity, gestational age or fetal gender in both groups.

Conclusions Cord blood copeptin concentrations are probably not affected by IUGR at term, in the absence of fetal distress, possibly due to a balance between copeptin up regulation by chronic fetal stress on the one hand, and copeptin down regulation in the presence of increased insulin sensitivity, on the other; thus, copeptin may not be a sensitive marker of perinatal chronic stress in healthy asymmetric IUGR infants. On the contrary, cord blood copeptin concentrations seem to primarily reflect perinatal stress associated with delivery mode.

PS-035 **AEROBIC TRAINING BUT NO RESISTANCE TRAINING INCREASES THE SIRT3 CONTENT AND REDUCES ADIPOSITY IN SEDENTARY OBESE MALE ADOLESCENTS**

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10.1136/archdischild-2014-307384.330

Introduction Obesity is a risk factor for mitochondrial dysfunction and cardiovascular and metabolic diseases. In a previous research, we demonstrated that 12 weeks of aerobic training (AT) increased the content of SIRT3 protein in skeletal muscle of sedentary obese adolescents. SIRT3 improves mitochondrial function. There are not studies that have compared the effect of AT and resistance training (RT) on SIRT3 content.

Object To compare the effect of AT versus RT on the content of SIRT3 protein in the muscle of sedentary obese adolescents.

Methods Twenty-seven sedentary obese male adolescents (age: 16.7 ± 0.9 years; BMI: 33.7 ± 4.3 kg/m²) completed a 1-month control period prior to be randomised to one of two supervised exercise protocols: AT (3 days/week, 40 min/day, 70–80% peak heart rate (HR_{peak}) or RT (11 exercises, 2 sets/exercise, 12 repetitions/set) for 12 weeks. Biopsies were obtained from the vastus lateralis muscle before and after 12 weeks of training protocol to analyse the content of SIRT3, PGC-1 α and NRF-1 proteins by western blot. Participants were tested for VO_{2peak}, metabolic, and anthropometric variables.

Results AT increased the content of SIRT3, which was associated with improvements in PGC-1 α content (r = 0.7, p < 0.05) and body fat percentage (r = -0.71, p < 0.05). AT improved waist circumference, fat percentage and VO_{2peak}. RT increased arm and thigh muscle area and strength but did not affect SIRT3, PGC-1, and adiposity.

Conclusions Our data suggest that AT was effective for improving the SIRT3 content and adiposity; therefore, AT may decrease the risk of cardiovascular and metabolic diseases.