

Selected Abstracts of the 13th International Workshop on Neonatology

THE POWER OF EPIGENETICS TWINS: IDENTICAL BUT DIFFERENT

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The Workshop has been organized with the patronage of the Italian Society of Neonatology (SIN), the Italian Society of Pediatrics (SIP), the Italian DOHaD (Developmental Origins of Health and Disease) Society, the Italian Society of Preventive and Social Pediatrics (SIPPS), the Union of European Neonatal and Perinatal Societies (UENPS), the International Federation of Clinical Chemistry and Laboratory Medicine (IFCC), the Union of Middle-Eastern and Mediterranean Pediatric Societies (UMEMPS), the European Association of Perinatal Medicine (EAPM) and lastly the Italian-Romanian Society of Pediatrics.

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gained new functions, “stemness” characteristics and probably immortalization [3]. Cancer Stem Cells (CSCs) can renew themselves and give origin to a differentiated aberrant progeny, not responding to homeostatic control and probably able to induce metastatization in murine models.

CONCLUSIONS

ESCs, with their high proliferation rate and low immunogenic power, show an enormous therapeutic potential and result very promising for clinical experiments and applications. For this reason, further studies are needed to fully understand ESC's features [3]. Unfortunately, the enormous regenerative potential of endometrium is not exempt from an ugly side, coexisting with the good one as in a two-faced Janus and wasting the regenerative mechanism that allows reproduction and the miracle of life itself.

REFERENCES

- [1] Gargett CE, Schwab KE, Deane JA. Endometrial stem/progenitor cells: the first 10 years. *Hum Reprod.* 2016;2:137-63.
- [2] Kessler M, Zietlow R, Meyer TF. Adult stem cells niches-Stem cells in the female reproductive system. In: Wislet-Gendebien S (Ed). *Adult Stem Cell Niches*. Available at <https://www.intechopen.com/books/adult-stem-cell-niches/adult-stem-cell-niches-stem-cells-in-the-female-reproductive-system>, date of publication: 2014, last access: September 2017.
- [3] Xu Y, Zhu H, Zhao D, Tan J. Endometrial stem cells: clinical application and pathological roles. *J Clin Exp Med.* 2015;8(12):22039-44.

ABS 55

IMBALANCE OF PRO- AND ANTI-INFLAMMATORY CYTOKINES IN COMMUNITY ACQUIRED PNEUMONIA OF CHILDREN WITH DIFFERENT LEVELS OF PHYSICAL DEVELOPMENT

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INTRODUCTION

Physical development (PD) of children and adolescents reflects the pattern of body growth processes, its morphological and functional state for each age period. Despite the large number of studies in this field, the problem remains unclear concerning the peculiarities of the immune reaction to acute inflammatory process of children with different levels of PD. Taking into account the high incidence rate for community-acquired pneumonia (CAP) among children of different age groups and the lack of clear data on the peculiarities of its course among patients with different PD levels, the relevance of the study is beyond doubt.

MATERIALS AND METHODS

Having examined 171 children (of 3-14 years old) CAP diagnosis was made due to the Order of the Ministry of Health of Ukraine “On Approval of Protocols for Provision of Medical Care to Children in the field of “Children’s Pulmonology”. The assessment of PD level of children was made under body mass index (BMI). Taking into account PD level patients were divided into groups: 1st group (n = 50), with overweight (OWT); 2nd group (n = 50), with body weight deficiency (BWD); 3rd group (n = 51), with average physical development indices (APDI). The control group consisted of 20 apparently healthy children of correspondent age. The cytokine profile (IL-1 β , IL-4 and TNF- α) was evaluated using a solid-phase immunoenzymometric assay in serum on 3-4 day and 7-8 day from onset of the disease. The research was carried out according to international bioethical standards.

RESULTS

Analysis of results of cytokine studies among patients with CAP showed that the level of proinflammatory interleukins (IL-1 β and TNF- α) was significantly higher among children with OWT and BWD than among children of control group. The analysis of IL-1 β levels among children with different PD levels, found that level of IL-1 β in the group with OWT and BWT was significantly higher in 1.4 times (50.07 ± 6.04 pg/ml and 48.47 ± 5.73 pg/ml) ($p < 0.05$) compared to patients with APDI (34.9 ± 4.23 pg/ml). There were no significant differences between patients with OWT and BWT ($p > 0.05$). Rate of increase of the content of proinflammatory cytokines among girls with OWT ($[34.8 \pm 4.21]\%$; $p < 0.05$) significantly exceeds (in 3.3 times) than among boys ($[11.1 \pm 1.2]\%$; $p < 0.05$). It makes it possible to establish the differences in metabolism of IL-1 β in response to the inflammatory process in the lungs and the dependence on PD level. The level of TNF- α was found to be $56.1 \pm 4.7\%$ among patients with OWT, $47.5 \pm 3.2\%$ among patients with BWT and $39.1 \pm 2.7\%$ among children with APDI ($p > 0.05$). The maximum increase of IL-4 level among children with this elevated level, was found among children with BWD ($47.5 \pm 3.2\%$), while patients with OWT had significantly less (in 1.7 times; $p < 0.05$, among $26.8 \pm 2.2\%$ of patients), however, the elevated level of cytokine in the group of patients with APDI ($21.7 \pm 1.9\%$), in 2.2 times less ($p < 0.01$) than among patients with BWD and in 1.2 times less than in the group with OWT.

CONCLUSIONS

Assessment of characteristics of the immune response to acute inflammation among pediatric patients with CAP shows a clear imbalance between pro- and anti-inflammatory cytokines and has a clear dependence on the level of PD of the child. Thus, there is an increase in productivity of infectious cytokines (IL-1 β , TNF- α) in the groups of children with OWT and BWD, as well as a significant increase of anti-inflammatory cytokine rates (IL-4), which is appropriate to patients with BWD.

ABS 56**THINK FIRST ABOUT WHAT'S COMMON**

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INTRODUCTION

Cardiac myxoma is a benign neoplasm unusual in neonates. It's an endocardial mass that occupies the cardiac chamber. Most of myxomas are found in the left atrium representing a risk factor for thromboembolism. Right atrial thrombosis (RAT) is a rare event in neonates. There's a strong association between central venous catheters and venous thromboembolic events. Incidence is still not clear (1.8-8.3%) [1]. Risk factors for RAT include stasis, vascular injury and hypercoagulable state (congenital heart disease, parenteral nutrition, prematurity, protein losing state and malignancies). There are no guidelines on the management of RAT in the neonatal and pediatric population. The clinic varies from asymptomatic cases to respiratory distress and arrhythmia. Some authors classify patients in high, moderate or low risk, considering some features of thrombi (dimension > 2 cm, pedunculated, mobile or snake-shaped). Neonates and children with RAT who are asymptomatic, hemodynamically stable and at low risk could be followed with radiological monitoring with or without anticoagulation. Some authors prefer to use unfractionated heparin, which is more reliable and predictable in children. For symptomatic or high-risk patients, management decisions should be considered on a case-by-case basis. Surgical thrombectomy or thrombolytic therapy have significant risk of surgical mortality and bleeding.

CASE REPORT

P. was referred to the Department of Neonatology at birth because preterm (34 w), male infant of diabetic mother treated with insulin. No family history of cardiac and hematologic disease.

Physical examination: heart rate 140/bpm, respiratory rate 45 breaths/min, peripheral oxygen saturation 98%. No dyspnea. Laboratory tests: leukocytosis, moderated elevation of C-reactive protein and procalcitonin. He started ceftazidime e.v. Electrocardiography was normal. Because of persistent hypoglycemia umbilical vein catheter (UVC) had been placed. Chest X-ray shows UVC in the vein port, so has been removed by 2.5 cm. On the third day of life he developed jaundice requiring phototherapy. Echocardiography examination showed an echo contrast, floating, oval shaped mass, sized 5 x 6 mm in the right atrium. The differential diagnosis was between thrombosis and atrial myxoma. For that reason we moved the baby in a third level center where he was evaluated for a potential cardiac surgery. After 6 days of follow-up they resigned the baby and decided to continue cardiological monitoring outpatient. The next cardiological control echocardiography reveal spontaneous resolution of the atrial mass.

CONCLUSIONS

Considering the spontaneous resolution and the anamnestic data of UVC, prematurity and parental nutrition, the most likely diagnosis was RAT. UVC are associated with complications such as infections, thrombosis and trauma; although intracardiac thrombosis is rare in children, the most common cause of atrial mass is thrombosis associated with UVC. Take home message: remember to place special attention in the placement of UVC!

REFERENCES

[1] Yang JY, Williams S, Brandão LR, Chan AK. Neonatal and childhood right atrial thrombosis: recognition and a risk-stratified treatment approach. *Blood Coagul Fibrinolysis*. 2010;21(4):301-7.

ABS 57**A COMPLEX CASE OF ANOMALOUS LEFT CORONARY ARTERY ORIGIN FROM THE PULMONARY ARTERY (ALCAPA)**

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