

## Day of the Young Researchers in Paediatrics'2009, 19.6.09, St Gallen

Anita Truttmann and Nicole Gross, Lausanne

The traditional Day of the Young Researchers in Pediatrics' was held this year in St Gallen, in parallel to the Annual Meeting of the Swiss Society for Pediatrics (SSP), the 19th June 2009. After several years, the day was again integrated in the annual meeting, decision which was taken and proposed by the Swiss pediatric units chiefs in order to improve the participation and the attractiveness of research, fundamental as well as clinical. The room facilities were shared with the annual meeting (Olma Halls, Restaurant Rosso), but the organization was independent, and unlike other years, the traditional sponsor retrieved the support, except for the prize, this due to the economical situation and the great amount of sponsors involved in the SSP meeting. Therefore, the rent of the room and multimedia parts as well as lunch were kindly taken over by the organization of the annual SSP meeting. The organization of the day is assured by a rotation of the 5 national universities, and this year, the University of Lausanne was committed, with clinical and basic research-oriented organization committee, Nicole Gross, basic research in pediatric oncology and Anita Truttmann, clinical and basic research in neonatal asphyxia. As every year, a prize, sponsored by Nestlé, awarded the best clinical and fundamental presentations.

The first abstract selection was made in February 2009 by the Pediatric Departments internally in order to submit maximum 3 abstracts and projects/department. While some university-hospitals had trouble to follow this rule and submitted up to 5 abstracts, most of them could submit 3 projects, and one non university-hospital (Lucerne) submitted a clinical study. In total, 19 presentations were selected; around 12 presentations were more about clinical-oriented research and 7 more fundamental research-oriented projects. Compared to the last day of research (November 2007), the number of clinical projects was much higher in 2009, reflecting may be the fact of the integration of the day in the annual

SSP meeting, more accessible and open to clinicians. Several fields were represented, with abstracts from immunology/hematology (4), endocrinology and metabolism (4), oncology (3), pneumology/neonatology (3), infectiology (1), pediatric intensive care (2), pediatric surgery (1) and neurology/neuro-imaging (1). The researchers were all younger than 40, 10 were female and 9 were male. Except one, all data presented was from Switzerland, which is also criteria for participation and consideration for the prize award.

The first session started with 8 clinical presentations with topics as followed: on neonates and crying patterns (**Caroline Guyer, Zurich**) and the potential positive effect of neonatal nursing during the night and its influence on weight gain in preterm infants; on cardiovascular hemodynamics and a possible diagnostic test using a variation of the inspiratory ventilation peak pressure and looking to the effects on systolic pressure in critically ill pediatric patients (**Eva Kühlwein, Zurich**); on heart transplant patients and their coronary flow reserve as prognostic factor, based on a patient cohort from Denver (**Cécile Tissot, Geneva**); on the incidence and risk factors of catheter-related arterial thrombosis in children (**Barbara Brotschi, Zurich**); on the exposure to air pollution during pregnancy and potential implications on the neonatal lung function and long term morbidity (**Philipp Latzin, Bern**); on treatment of NUT Midline Carcinoma in children and young adults and the proposal of a national and international network (**Sonja Luer, Berne**); on obese prepubertal children and the presence of early endothelial impaired function measured as flow-mediated dilatation by ultrasound (**Albane Maggio, Geneva**).

This session was followed by the State of the art lecture which was held by Dr. PD **Christa Flück**, from the Division of Pediatric Endocrinology and Diabetology of

the University of Berne, entitled: «Steroids, the deeper, the sweeter». She presented an excellent overview of inborn errors of steroid hormone biosynthesis including P450 oxidoreductase deficiency, the newest form of congenital adrenal hyperplasia. The talk covered clinical findings as well as the complex underlying molecular mechanisms reviewing current research data in this field as well as her own data which was acquired partly in San Francisco during her research fellowship in the Laboratory of Prof. Miller, and more recently in her own research laboratory in Berne.

After lunch break, seven basic research projects, covering various aspects of pediatric biology, from Lausanne Zurich and Basel universities were presented in the second session.

**Eliane Trummer-Menzi (Lausanne)** opened the session with the presentation of an elegant animal model to study the impact of different risk factors in the onset of bronchopulmonary dysplasia (BPD) in preterm infants. The data identified inflammation and mechanical ventilation as major risk factors in the development of BPD. **S. Beglinger (Basel)** presented a first pilot study to investigate the intraduodenal and physiological mechanisms regulating Glucagon-like peptide (GLP-1) release in response to fat in humans. An attenuated GLP-1 release indeed appears to be linked to obesity. **David Coelho and Martin Stucki (Basel and Zurich)** showed data on collaborative projects on the metabolism and regulation of cobalamin (vitamin B12) synthesis. A new concept for a novel chaperone mechanism for the intracellular channeling of cobalamin in mammals whereby the cblC protein acts as a shuttle and the cblD protein as the branch point was proposed. Moreover, defects of Cobalamin lysosomal release (cblF) and subsequent steps common to synthesis of both coenzymes (cblC, cblD), was proposed to cause combined MMA / HC. Molecular mechanisms whereby mutations in the MMADHC gene causing three different phenotypes were identified.

The session ended with two oncology projects on chemokines and their receptors-mediated mechanisms controlling tumor growth and migration. **Julie Liberman from Lausanne** reported the involvement of the chemokine/chemokine receptor CXCL12/CXCR4 axis in the malignant progression

of neuroblastoma. She showed how the expression of CXCR4 by neuroblasts indeed promotes their growth and survival but not their dissemination.

The data showed by **Laurent Brault (Basel)** suggest that the kinase PIM1 activity is essential for homing and migration of hematopoietic cells through direct modification of CXCR4. As CXCR4 is also important for homing and maintenance of cancer stem cells, he postulated that PIM inhibitors might exert their anti-tumor effects in part by interfering with interactions with the microenvironment.

A third session followed after the second break on again clinical topics: **Nicolas Jauquier (Lausanne)**, a pediatric surgeon, presented an elegant study in collaboration with the **University Hospital of Basel** comparing two treatment approaches for femoral shaft fractures in preschool children, and found same effectiveness and more efficiency for the conservative method (immediate hip spica) against the operative approach (intermedullary nailing). Second presentation was on the power of DTI in a longitudinal study in stroke patients, with preliminary results (**Kevin Wingeier, Berne**), and finally two last presentations from **Geneva**, with **Johan Siebert**, presenting data about the relationship between the memory B cell compartment and the susceptibility to recurrent low respiratory tract infections, which was not confirmed, as well as **Cédric Sottas**, which presented data on new and more sensitive and specific assays for assessing the Varicella zoster virus immunity in orthotopic liver patients.

The best clinical and fundamental research presentations were then announced, attributed unanimously by the jury composed of: G. Holländer, Basel, R. Krämer Bern, Ch. Flück, Berne, Nicole Gross, Lausanne, Anita Truttmann Lausanne, Nicolas Lutz Lausanne, Matthias Baumgartner (Zurich):

#### Prizes sponsored by Nestlé for the best

1) Clinical research presentation: **Martin Stocker, from Lucerne**. On a prospective randomized intervention trial in newborns with suspected early onset sepsis and the sensitivity of procalcitonin as a parameter to shorten the duration of antibiotic therapy. He could show that serial procalcitonin determinations al-

lowed to shorten the duration of empirical antibiotic treatment in term and near term neonates in suspected early-onset sepsis with an absolute risk reduction of 27%. They are planning to confirm the safety of the PCT-guided strategy in a larger trial.

2) Basic research presentation: **Imane Azzouzi, from Zurich**. This elegant study reports an original and sophisticated technical approach (using micro RNAs) to investigate the complex mechanisms of post-transcriptional regulation of hemoglobin genes expression (Fetal Hemoglobin regulation). She identified five miRNAs as responsible to cause persistent HbF synthesis after birth, and hence potential therapeutic targets to improve symptoms in thalassemia and sickle cell disease. The results provide new insights that might lead to better therapies or even drug development for the treatment of anaemia in children and infants.

For 2010, the day of the young researchers will be organized by the University of Zurich (D. Nadal and F. Sennhäuser) and will be held presumably during the meeting of the SSP in Crans Montana (June 2010), announcement will come soon.

For the organization in 2009, Anita Truttmann and Nicole Gross.

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