

New Concepts in Neonatal Sepsis

IS-013 NEONATAL SEPSIS, NEW PREVENTIVE STRATEGIES

¹A. Borghesi, ^{2,3}I. Mazzucchelli, ⁴M. Pozzi, ⁴L. Bollani, ¹M. Stronati. ¹Neonatology Patologia Neonatale e Terapia Intensiva and Laboratory of Neonatal Immunology, Fondazione IRCCS Policlinico San Matteo, Pavia, Italy; ²Laboratory of Neonatal Immunology, Fondazione IRCCS Policlinico San Matteo, Pavia, Italy; ³Department of Internal Medicine and Therapeutics, University of Pavia, Pavia, Italy; ⁴Neonatology Patologia Neonatale e Terapia Intensiva, Fondazione IRCCS Policlinico San Matteo, Pavia, Italy

10.1136/archdischild-2014-307384.13

Severe infections represent the main cause of neonatal mortality, accounting for more than 1 million neonatal deaths worldwide every year.

Late-onset infections (occurring after the first 72 h of life) are thought to be caused by horizontally transmitted microorganisms, and may be 1) nosocomial, occurring during hospital stay in NICU, or 2) non-nosocomial, affecting home discharged, otherwise healthy full-term neonates.

1) Strategies to reduce the incidence of infection in NICU include

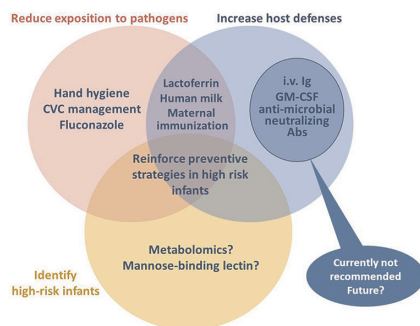
i) Reduction of the exposition of newborn infants to pathogens: hand hygiene practices; proper management of central lines; promotion of early enteral feeding with human milk; prophylaxis with lactoferrin and fluconazole;

ii) Improvement of neonatal defenses: lactoferrin and human milk. Cytokines/growth factors (e.g., GM-CSF), and other immune therapies (intravenous Ig, monoclonal anti-staphylococcal antibodies) are currently not recommended for neonates. Future strategies may include: the development of highly specific, broadly neutralising antibodies to be used in high risk infants; and maternal immunisation practices to prevent both late-onset infection and early-onset infection and/or infection-related preterm birth.

iii) Identification of high risk infants: this is a central point including, but not limited to, the use of metabolomics for risk stratification.

2) Strategies to prevent infections in otherwise healthy, home discharged full-term neonates

These infections are almost always unpredictable and often severe; future research should focus on the identification of high-risk infants, in order to implement preventive protocols; and on maternal immunisation against common pathogens as a general practice to reduce neonatal vulnerability.



Abstract IS-013 Figure 1 A comprehensive view of the strategies for the prevention of neonatal infections

Nosocomial Infections in the ICU

IS-014 THREAT IN ICU: GRAM NEGATIVE BACTERIA RESISTANCE

P. Nordmann. Medicine, University of Fribourg, Fribourg, Switzerland

10.1136/archdischild-2014-307384.14

Threat in ICU in 2014; emerging resistance in Gram negatives.

Emerging antibiotic resistance mechanisms are emerging now worldwide at a high rate in particularly among nosocomial infections. The perspective of impossible-to-treat infections is raising due to lack of perspective of the development of effective novel antibiotics. This may cancel the developments of the modern medicine such as important surgery, transplantation and intensive care.

Multidrug resistance and pandrug resistant strains are increasingly identified in species such as *Klebsiella pneumoniae*; *Escherichia coli*, *Pseudomonas aeruginosa* and *Acinetobacter baumannii* which are the main Gram-negative pathogens in ICU. The most important resistant traits are the extended-spectrum β -lactamases and the carbapenemases that hydrolyse at least the expanded-spectrum cephalosporins and the carbapenems, respectively. Those resistance traits are mostly associated to resistance markers to fluoroquinolones and aminoglycosides which are the two other main antibiotic classes of broad spectrum activity. Those emerging resistance traits are mostly the results of overuse and misuse of antibiotics in developing countries in human medicine followed by transfer of multidrug resistant bacteria by humans themselves (travel, migration...). Screening of infected patients and carriers by using rapid diagnostic techniques is becoming mandatory for choosing the most appropriate first line antibiotherapy and preventing the development of outbreaks.

Paediatric Cancer

IS-015 TRANSLATIONAL RESEARCH IN PAEDIATRIC CANCER: FROM THE BENCH TO THE BEDSIDE

¹S. Gallego, ²J. Sanchez de Toledo, ³M. Segura, ³J. Roma. ¹Pediatric Oncology, Hospital Universitario Vall d'Hebron and Vall d'Hebron Research Institute, Barcelona, Spain; ²Pediatric Oncology and Hematology, Hospital Universitario Vall d'Hebron and Vall d'Hebron Research Institute, Barcelona, Spain; ³Translational Research in Pediatric Cancer Unit, Vall d'Hebron Research Institute, Barcelona, Spain

10.1136/archdischild-2014-307384.15

Malignant tumours in children and adolescents are rare diseases with different prognosis and biologic behaviour. Prognosis of childhood cancer has improved considerably in recent decades and survival is approximately 70% in western countries. However, even with the current multimodal therapies, a considerable number of these patients still relapse and eventually die due to progressive or refractory tumours.

To improve the efficacy of anticancer therapies in children we have established a Translational Research Program in Paediatric Cancer consisting on:

1. Molecular characterisation of paediatric tumours.
2. Identification of new molecular targets.
3. Screening of new drugs in cell lines and in animal models.
4. Phase I-II clinical trials.

We start with the identification of genes and pathways candidates to be targeted using different platforms, followed by the validation of the identified targets in cell lines and primary tumours and the selection of appropriate candidates. The next