

MEETING ABSTRACT

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Old and new strategies for the prevention of nosocomial infections

Iliaria Stolfi^{1*}, Carla Fassi¹, Roberto Pedicino², Luigi Giannini³

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Nosocomial infections are a significant issue of public health. In Italy, the incidence of nosocomial infections range between 5 and 8% [1]; in Neonatal Intensive Care Unit (NICU) range between 7 and 24.5% [2].

Nosocomial infection in a newborn is defined as an infection arisen after 48-72 hours of hospitalization. The extremely low birth weight (ELBW) neonates have an increased risk of developing infections (40%) [2], due to the immaturity of the immune system, the prolonged length of hospitalization and the frequent need for invasive procedures (central venous catheters - CVC, mechanical ventilation, parenteral nutrition, prolonged antibiotic therapies). In NICU, sepsis accounted for 45-55% of cases of nosocomial infections, followed by the lower respiratory tract infections (16-33%), skin and soft tissue infections (26.3%), urinary tract infections (8-19%) and meningitis (9.6%) [2]. The gram-positive bacteria are responsible for 65% of infections (Coagulase-negative Staphylococci - CoNS, Staphylococcus aureus and Enterococcus spp respectively in 50, 35 and 6% of cases), followed by Gram-negative bacteria (Klebsiella, Pseudomonas, E. Coli) and fungi in 25% of cases each. *Candida albicans* is involved in 50% of cases of fungal infections. Viruses are accountable for epidemics in the NICU, but the incidence of viral infections is likely to be underestimated.

The prevention of nosocomial infections is an essential element for the management of the newborns [3,4] and is based on strategies to reduce the risk factors related to the newborn (immune system, careful skin care, etc.) and to improve the invasive care procedures (implementation and dissemination of guide lines for

accurate and proper hand hygiene [4,5], for prevention of CVC related infections [4,6] and ventilator-associated pneumonia [7], promotion of enteral feeding with breast milk [8]). Not least, the need for accurate diagnostic strategies for early detection of neonatal infections and a rational use of antimicrobial therapies and antibiotic prophylaxis [9,10]. The new strategies of prophylaxis of infections involving the use of bioactive substances with anti-infective properties, such as lactoferrin [11]; the use of probiotics, which have recognized immunomodulatory and anti-infectious activities [12]; the prophylaxis with antifungal drugs [13]. Lastly, NICU should also meet specific criteria of organization, providing to maintain an adequate ratio nurses/beds, avoid overcrowding and understaffing, make easily available devices for hand washing, organize meetings for training/provide to caregivers regular feedback of performance data, plan continuous monitoring and a surveillance system of the rate of nosocomial infections and avoid preventive measures of unproven effectiveness.

Authors' details

¹Department of Obstetrics and Gynecology, Newborn Emergency Transport Service (STEN), Umberto I Policlinico of Rome, University hospital, Sapienza University of Rome, 00161, Italy. ²Department of Obstetrics and Gynecology, Neonatal Intensive Care Unit, Umberto I Policlinico of Rome, University hospital, Sapienza University of Rome, 00161, Italy. ³Department of Pediatrics, Umberto I Policlinico of Rome, University hospital, Sapienza University of Rome, 00161, Italy.

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* Correspondence: iliana.stolfi@gmail.com

¹Department of Obstetrics and Gynecology, Newborn Emergency Transport Service (STEN), Umberto I Policlinico of Rome, University hospital, Sapienza University of Rome, 00161, Italy

Full list of author information is available at the end of the article

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