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Session: Infection Control, Nosocomial Infections & Critical Care

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Room: Poster & Exhibition Area

Emergence and characterisation of community-associated Methicillin-resistant *Staphylococcus aureus* at a neonatal special care unit

E. Udo*, N. Al-sweih

Kuwait University, Faculty of Medicine, Safat, Kuwait

Background: Community-associated methicillin-resistant *S. aureus* (CA-MRSA) is an emerging healthcare problem among pregnant women and neonates worldwide. Until recently, the Maternity hospital in Kuwait has been free of MRSA. However, MRSA was isolated from neonates admitted to the neonatal special care unit in October 2011. This study was conducted to determine the genetic relatedness of MRSA isolated from neonates admitted to special care Units of the Maternity hospital in Kuwait

Methods: A total of 21 MRSA were isolated from 20 neonates between October and December 2011. They were characterized using antibiogram, pulsed-field gel electrophoresis (PFGE), SCCmec typing and spa typing and screened for the carriage of genes for Panton Valentine leukocidin (PVL) and capsular polysaccharide types 5 and 8.

Results: All isolates were susceptible to vancomycin, teicoplanin, linezolid, tigecycline and mupirocin but were resistant to trimethoprim (13/21), gentamicin and kanamycin (7/21), ciprofloxacin (5/21), erythromycin and clindamycin (2/22), tetracycline (2/22) and fusidic acid (2/22). PFGE identified seven pulsotypes and subtypes with nine isolates belonging to one cluster (type A). Pulsotypes B, D, E, C, F and G consisted of four, three, two and one isolates respectively. Spa typing differentiated the isolates into 11 spa types with five isolates belonging to spa type t3935, followed by spa types t6269 (3 isolates) and t 6892 (3 isolates), t1084 (2 isolates) and t2962 (2 isolates). Spa types t339, t1548, t5801, t1340, t2810 and t4410 occurred in single isolates. Twenty isolates contained SCCmec IV or V genetic elements that are usually associated with community associated MRSA (CA-MRSA) while one isolates contained SCCmec III element characteristic of healthcare-associated MRSA. Seven isolates spanning four pulsotypes and five spa types contained genes for PVL. Fifteen and six isolates carried genes for types 5 and 8 capsular polysaccharide respectively

Conclusion: This study highlighted the heterogeneous emergence of CA-MRSA in the neonatal special care unit which warrants the implementation of a rapid screening protocol for mothers and babies to prevent the establishment and further spread of CA-MRSA.

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Hand hygiene promotion in a university and tertiary hospital in the north of Portugal

A. Fernandes¹, E. Aires², P. Rodrigues², C. Vasconcelos^{1,*}

¹ Centro Hospitalar do Porto, Porto, Portugal

² CHP, Porto, Portugal

Background: Health care workers hands of are the most common vehicle in cross-transmission of microorganisms, so hand hygiene is essential to protect patients, health care worker and hospital environment. Aiming the prevention of healthcare associated infections and antimicrobial resistance, Portugal joined, in 2008, WHO's Hand Hygiene Campaign. This campaign, is based on handrubbing with alcohol based solution, available at the point of care, is faster, more effective and well tolerated when compared with handwashing.

Methods: We included all 33 clinical services from our hospital center. An initial assessment of professionals' adherence to hand hygiene, was followed by training and multimodal strategy, with various forms of awareness. The points of care were improved to one alcohol based solution, per bed. Observation of health care workers to hand hygiene compliance is performed by trained observers, during 2 months/year. They observe hand hygiene compliance, in 5 moments defined by WHO: before touching a patient, before clean/aseptic procedures, after body fluid exposure/risk, after touching a patient, and after touching patient surroundings. As outcome indicators: professionals adherence to hand hygiene; consumption of alcohol based solution; prevalence of infection.

Results: In 2008 we had 44% compliance, which gradually increase to 70.7% in 2011, standing above the national average which is 66.3%. There is a growing trend in all professional categories: nurses 77.5%, physicians 60.9%, auxiliary 65%, other health-care workers 59.3%. There was an improvement in all five moments: with lower compliance at the 1st and 5th (65%) and the highest at 2nd, 3rd and 4th (80%). Prevalence of infection rate decrease 6.8% between April 2009 (16.2%) and December 2011 (9.4%). Also MRSA prevalence decrease 17.8%, in two years, from 68.3 to 50.5%. Alcohol based solution consumption was 23.8 litros/1000 days of hospitalization, with an increase in 2009 (coincided Pandemic Influenza), a slight decrease in 2010 to 37.2 and a further increase in 2011 to 43.7.

Conclusion: All indicators points to the relevance of this project – most of all prevalence of infection rate decrease - and used methodology. All the departments were deeply involved and the results were analyzed individually, allowing specific intervention strategies.

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