863

VARIATION IN ANTIBIOTIC USE IN NEONATAL INTENSIVE CARE UNITS IN THE NETHERLANDS

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Background and aims: Monitoring antibiotic use is essential to prevent overuse and misuse of antibiotics and to address the threat posed by resistant microorganisms. Studies have shown great variability in use of antibiotics between Dutch and European hospitals. Since empiric antibiotic therapy differs between NICUs and there is no consensus on the choice of antibiotics, we examined the variation in quantity and classes of antibiotics used in all ten tertiary care neonatal intensive care units (NICUs) in the Netherlands during 2005.

Methods: We collected data from all tertiary care NICUs in the Netherlands on clinical and demographic characteristics and the type and quantity of systemic antibiotic use (expressed as Defined Daily Doses (DDD)/100 admissions) in 2005. Antibiotics were ranked by volume of DDDs, and those antibiotics which accounted for 90% of the total volume of use (Drug Utilization (DU) 90%) were noted. Treatment guidelines on antibiotic policy were investigated.

Results: Antibiotic consumption (based on pharmacy dispensing data) ranged from 130 to 360 DDD/100 admissions. In total 9-24 different antibiotics were used, of which 3-10 were in the DU90%-segment.

The number of used antibiotics that were mentioned in the treatment guidelines ranged from 4 (25%) to 10 (77%) antibiotics.

Conclusions: By comparing antibiotic use in Dutch NICUs we found a considerable variation in the number of different antibiotics used and in the total amount of antibiotic use. Exploration of the opportunities to reach consensus in antibiotic policy, and to increase attention to antibiotic stewardship, is recommended.

864

SCREENING OF INTERLEUKIN-1 RECEPTOR-ASSOCIATED KINASE 4 DEFICIENCY IN PATIENTS WITH HISTORY OF SEVERE PNEUMOCOCCAL INFECTIONS

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Introduction: Interleukin-1 receptor-associated kinase 4 (IRAK4) deficiency is an immunodeficiency disorder of the innate immune system resulting from inhibition of Toll-like receptor-mediated pathways. Some patients with IRAK4 deficiency experience severe bacterial infections until they reach three years of age; the infections weaken after the age of four or five years. Therefore, the prevention of bacterial infection is a priority in the first three years of life for patients with IRAK4 deficiency. TNF- α production is almost completely inhibited in mononuclear cells after stimulation with lipopolysaccharide in IRAK4 deficiency. Consequently, TNF- α production can be used as an early screen of IRAK4 deficiency in response to lipopolysaccharide in patients with severe pneumococcal infection.

Method: Nine patients who had experienced severe pneumococcal meningitis or sepsis were included in this study. The three males and six females ranged from 7 months to 21 years. IRAK4 deficiency was assayed by measuring the TNF- α production of mononuclear cells using flow cytometry following the stimulation of peripheral blood cells with lipopolysaccharide (J. Pediatr 2006; 148:546).

Result: All nine patients showed normal TNF- α production (84.8 - 97.4%).

Conclusion: None of the patients exhibited IRAK4 deficiency. However, due to the small number of subjects, further study using this screening method with a larger number of participants may detect latent IRAK4 deficiency in patients.