Pediatric intensive care unit

A pediatric intensive care unit (also paediatric), usually abbreviated to PICU, is an area within a hospital specializing in the care of critically ill infants, children, and teenagers. A PICU is typically directed by one or more pediatric intensivists or PICU consultants and staffed by doctors, nurses, and respiratory therapists who are specially trained and experienced in pediatric intensive care. The unit may also have nurse practitioners, physician assistants, physiotherapists, social workers, child life specialists, and clerks on staff, although this varies widely depending on geographic location. The ratio of professionals to patients is generally higher than in other areas of the hospital, reflecting the acuity of PICU patients and the risk of life-threatening complications.

Complex technology and equipment is often in use, particularly mechanical ventilators and patient monitoring systems. Consequently, PICUs have a larger operating budget than many other departments within the hospital.

A retrospective case-control study was conducted involving pediatric and neonatal intensive care units throughout a five-year period (January 2010-December 2014). Clinical and microbiological data were extracted from Hospital Infection Control Committee reports and patients' medical records. Risk factors were assessed in Carbapenem-resistant Klebsiella pneumoniae colonized patients who developed a subsequent systemic infection (cases) and compared to carbapenem-resistant Klebsiella pneumoniae colonized patients who did not develop infection (controls).

Throughout the study period, 2.6% of patients admitted to neonatal intensive care units and 3.6% of patients admitted to pediatric intensive care units had become colonized with carbapenem-resistant Klebsiella pneumoniae. After a mean of 10.6±1.9 days (median: 7 days, range: 2-38 days) following the detection of colonization, 39.0% of the carbapenem-resistant Klebsiella pneumoniae colonized patients in pediatric intensive care units and 18.1% of carbapenem-resistant Klebsiella pneumoniae colonized patients in neonatal intensive care units developed systemic carbapenem-resistant Klebsiella pneumoniae infection. Types of systemic carbapenem-resistant Klebsiella pneumoniae infections included bacteremia (n=15, 62.5%), ventilator-associated pneumonia (n=4, 16.6%), ventriculitis (n=2, 8.3%), intraabdominal infections (n=2, 8.3%), and urinary tract infection (n=1, 4.1%). A logistic regression model including parameters found significant in univariate analysis of carbapenem resistant Klebsiella pneumoniae colonization and carbapenem resistant Klebsiella pneumoniae infection groups revealed underlying metabolic disease (OR: 10.1; 95% CI: 2.7-37.2), previous carbapenem use (OR: 10.1; 95% CI: 2.2-40.1), neutropenia (OR: 13.8; 95% CI: 3.1-61.0) and previous surgical procedure (OR: 7.4; 95% CI: 1.9-28.5) as independent risk factors for carbapenemresistant Klebsiella pneumoniae infection in patients colonized with carbapenem-resistant Klebsiella pneumoniae. Out of 24 patients with carbapenem resistant Klebsiella pneumoniae infection, 4 (16.6%) died of carbapenem-resistant Klebsiella pneumoniae sepsis.

Asymptomatic colonization with carbapenem-resistant Klebsiella pneumoniae in intensive care units of pediatric departments should alert health care providers about forthcoming carbapenem-resistant Klebsiella pneumoniae infection. Those carbapenem-resistant Klebsiella pneumoniae colonized patients at risk of developing infection due to carbapenem-resistant Klebsiella pneumoniae may be targeted for interventions to reduce subsequent infection occurrence and also for timely initiation of empirical carbapenem-resistant Klebsiella pneumoniae active treatment, when necessary ¹⁾.

In the last few decades, there has been a tremendous advancement in foetal and maternal care, and it has led to premature babies born as early as 25 weeks of gestation being nursed and cared for in neonatal and pediatric intensive care units. However, these children can pick up a number of uncommon and rare hospital-acquired infections including central nervous system infections.

Wagh and Sinha have given their own insight as to the prevention of healthcare-associated infections in paediatric intensive care settings and reviewed the current literature on the topic.

Healthcare-associated infections are largely preventable provided adequate prevention and protective measures are put in place and prevention guidelines are stritctly followed ²).

1)

Akturk H, Sutcu M, Somer A, Aydın D, Cihan R, Ozdemir A, Coban A, Ince Z, Citak A, Salman N. Carbapenem-resistant Klebsiella pneumoniae colonization in pediatric and neonatal intensive care units: risk factors for progression to infection. Braz J Infect Dis. 2016 Mar-Apr;20(2):134-40. doi: 10.1016/j.bjid.2015.12.004. Epub 2016 Feb 8. PMID: 26867474; PMCID: PMC9427560.

Wagh A, Sinha A. Prevention of healthcare associated infections in pediatric intensive care unit. Childs Nerv Syst. 2018 Aug 18. doi: 10.1007/s00381-018-3909-4. [Epub ahead of print] PubMed PMID: 30121831.

From: https://neurosurgerywiki.com/wiki/ - Neurosurgery Wiki

Permanent link: https://neurosurgerywiki.com/wiki/doku.php?id=pediatric intensive care unit



Last update: 2024/06/07 02:55