POINT PREVALENCE SURVEY OF ANTIMICROBIAL CONSUMPTION IN THAI TERTIARY-CARE PEDIATRICS UNITS, RESULT FROM THE GARPEC STUDY

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Background

Antimicrobial surveillance data is essential as a part of antibiotic stewardship program and assessment of the appropriateness of prescriptions.

Objectives

To describe the antimicrobial prescribing in hospitalised neonates and children in tertiary-care centres in Thailand.

Methods

A standardised one day cross-sectional point prevalence survey (PPS), which is a part of the Global Antimicrobial Resistance, Prescribing, and Efficacy among Neonates and Children (GARPEC), was quarterly conducted in 2016. The surveys were conducted in 2 hospitals in Thailand. A standardised online data collection tool was developed using REDCap®. All inpatient neonates and children receiving an antimicrobial at 8:00 am on the day of the PPS were included. Denominators included the total number of inpatients.

Results

Of 866 patients during 4 cross-sectional surveys, 361 (42%) received antimicrobials. Of these, the antimicrobial consumption and type of treatment in neonates, children from general ward and intensive care unit (ICU) were shown in Table 1. The indications were therapeutic 66% in neonates and 75% in children. The top 3 commonly prescribed antibiotics are shown in Figure 1.

Results (continued)

The most common indications of antibiotic prescribing in neonates were sepsis (39%), followed by prophylaxis from newborn risk factor (13%). In children, the most frequent indications were bacterial lower respiratory tract infection (20%) followed by sepsis (12%).

Table 1. Antimicrobial prevalence rates and indicators by ward type

Ward type	Patient received antimicrobials/ total inpatients (n)	Prescriptions (n)	Type of Treatment n (%)	
Neonate	82/337 (24%, 95% CI 20-29%)	159	Prophylaxis	54 (34%)
			Empiric	87 (55%)
			Targeted	18 (11%)
General Pediatrics	215/443 (49%, 95% CI 44-53%)	309	Prophylaxis	96 (31%)
			Empiric	167 (54%)
			Targeted	46 (15%)
Pediatric ICU	64/86 (74%, 95% CI 64-82%)	137	Prophylaxis	16 (12%)
			Empiric	74 (54%)
			Targeted	47 (34%)

Discussion

- Our study demonstrated the overall antibiotic consumption rate in neonatal care unit was 24% (95% CI 20-29%) compared to global data¹ which was 28% (95% CI 26-31%). While the overall antibiotic consumption rate in general pediatrics ward and PICU were 49% and 74%, respectively compared to global data¹ which was 40% and 61%.
- Most common prescribed antibiotics among neonates were ampicillin in combination with aminoglycoside, compatible with data from Asia, Northern Europe and America region².
- Contrastingly, our data showed high rate prescribing of meropenem in children. Compare to published study², percentage of meropenem use stratified by region were range, from 1.8% in Eastern Europe, 2.4% in Africa, 4.6% in Western Europe, 7.1% in Asia and 13.1% in Latin America.

References:

- Versporten A, Sharland M, Bielicki J, et al; ARPEC Project Group Members. *Pediatr Infect Dis J* 2013;32(6):e242-53.
- Versporten A, Bielicki J, Drapier N, Sharland M, Goossens H; ARPEC project group. *J Antimicrob Chemother* 2016;71(4):1106-17.

Figure 1. Top 3 common prescribed antibiotics stratified by ward

Conclusion: This surveillance study demonstrated highly use of meropenem in children in tertiary care centres in Thailand which may indicate caution of critical antibiotic use.