Evaluation of Antibiotic Prescribing Pattern and Appropriateness among Hospitalized Pediatric Patients: Findings from a Malaysian Teaching Hospital

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Abstract

Background: Antibiotics are commonly prescribed for hospitalized children. However, only a limited number of studies have evaluated antibiotic use in this population. The current work assessed the indication, prescribing pattern and appropriateness of antibiotics among pediatric inpatients. Methods: A retrospective cross-sectional study was conducted at the pediatric wards of a teaching hospital in Malaysia. Electronic charts of inpatients (≤12 years old) admitted in 2019 were reviewed. Antibiotic indication, selection, dosing regimen, route of administration and duration of treatment were evaluated using the national antibiotic guidelines (NAG). A binomial logistic regression was applied to test potential predictors of inappropriate antibiotic prescribing (IAP) incidence. Results: Out of 702 pediatric inpatients, 292 (41.6%) patients were given antibiotics and met the inclusion criteria. More than half of the patients (57.9%) were males, with a median age of 2.5 years. A total of 385 and 285 antibiotics were prescribed during hospitalization and at discharge, respectively. Azithromycin, co-amoxiclav and cefuroxime were the top three prescribed agents. Out of 670 prescriptions, IAP was identified in 187 (28%) prescriptions that were issued for 169 (57.9%) out of the 292 patients included in the study. Improper antibiotic selection, wrong dose and unnecessary antibiotic prescribing accounted for 41%, 34% and 10% of the identified IAP, respectively. Giving lower-than-recommended doses (28%) was more prevalent than prescribing higher doses (5%). The use of two antibiotics and treating upper respiratory tract infections were independent risk factors for IAP incidence. Conclusions: Prescribers did not adhere to the NAG in more than one quarter of the prescriptions. This may increase the risk of treatment failure, adverse drug reactions and the development of antibiotic resistance. © 2022 by the authors.

Author keywords

antibiotic; hospital; inappropriate prescribing; Malaysia; pediatric inpatients

Indexed keywords

EMTREE drug terms

amikacin; amoxicillin; amoxicillin plus clavulanic acid; ampicillin; antibiotic agent; azithromycin; carbapenem; cefotaxime; ceftazidime; ceftriaxone; cefuroxime; clarithromycin; clindamycin; cloxacillin; cotrimoxazole; erythromycin; gentamicin; meropenem; metronidazole; penicillin G; penicillin V; piperacillin plus tazobactam; vancomycin

EMTREE medical terms

Article; child; controlled study; cross-sectional study; female; gastroenteritis; hospital patient; human; incidence; infant; major clinical study; Malaysia; male; meningitis; pediatric patient; pharyngitis; pneumonia; preschool child; prescribing practice; prescription; retrospective study; teaching hospital; tonsillitis; treatment duration; unnecessary prescribing; upper respiratory tract infection; urinary tract infection

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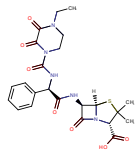
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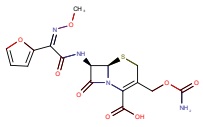
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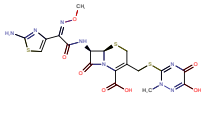
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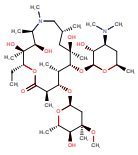
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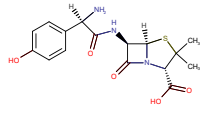
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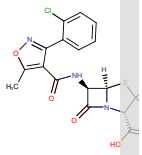
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amoxicillin	26787-78-0, 34642-77-8, 61336-70-7
amoxicillin plus clavulanic acid	74469-00-4, 79198-29-1
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