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ORIGINAL ARTICLE

Antibiotic prescribing in acute respiratory tract infections in general practice☆

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Abstract
Introduction: Antimicrobial resistance is a worldwide threat to public health. Acute respiratory tract infections are the main reason for antibiotic prescription in the Spanish paediatric population. The aim of the study was to describe the frequency of antibiotic prescription and their pattern of use in acute respiratory tract infections diagnosed in children in primary care in Aragón (Spain).
Methodology: A study was conducted over a 1-year period on children between 0 and 14 years-old, recording all episodes of acute otitis, acute pharyngotonsillitis, non-specific upper respiratory infection, and acute bronchitis. The proportion of episodes within each diagnosis receiving an antibiotic prescription was calculated, and the prescribing pattern was determined.
Results: Half (50%) of the children in Aragón were diagnosed with a respiratory tract infection during the study period. Non-specific upper respiratory infection was the most frequent diagnosis. An antibiotic was prescribed in 75% of pharyngotonsillitis episodes, 72% of otitis, 27% of bronchitis, and 16% of non-specific upper respiratory infections. Broad spectrum antibiotics, mainly amoxicillin and amoxicillin-clavulanic, were predominantly prescribed.
Conclusions: Antibiotic prescription in respiratory tract infections in children was generally high, and the choice of antibiotics was probably inappropriate in a high percentage of cases. Therefore, an improvement in antibiotic prescription in children appears to be needed.

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PALABRAS CLAVE
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Prescripción antibiótica en infecciones respiratorias agudas en atención primaria

Resumen
Introducción: La resistencia a antimicrobianos representa una amenaza para la salud pública mundial. Las infecciones respiratorias agudas son el principal motivo de prescripción antibiótica en la población pediátrica española. El objetivo del estudio fue describir la frecuencia de prescripción y el patrón de utilización de antibióticos en infecciones respiratorias agudas, diagnosticadas en atención primaria, en la población pediátrica de Aragón.
Material y método: Se incluyeron los episodios de otitis aguda, faringoamigdalitis aguda, infección respiratoria superior inespecífica y bronquitis aguda, registrados durante un año, en niños de 0-14 años. Se calculó la proporción de episodios que recibieron antibiótico, por diagnóstico y grupo de edad, y describió el patrón prescriptor.
Resultados: El 50% de los niños fueron diagnosticados de infección respiratoria aguda durante el periodo de estudio, siendo la infección respiratoria superior inespecífica la más frecuente. Se prescribió un antibiótico en el 75% de las faringoamigdalitis, 72% de otitis, 27% de bronquitis y 16% de infecciones respiratorias superiores inespecíficas. Los antibióticos más prescritos fueron los de amplio espectro, principalmente amoxicilina y amoxicilina-clavulánico.
Conclusiones: El uso de antibióticos en infecciones respiratorias agudas pediátricas fue, en general, elevado, y la elección del tipo de antibiótico podría ser inadecuada en un porcentaje elevado de casos. Se considera necesaria una mejora en la práctica prescriptora de antibióticos en niños.

Introduction

Antimicrobial resistance is a global health problem and is believed to be related to community use of antibiotics.[1] There is evidence of a high rate of antimicrobial use in the Spanish paediatric population, and acute respiratory tract infections (ARTIs) are the main reason for their prescription,[2] even though it has been demonstrated that antimicrobials typically provide little benefit in the treatment of these conditions.[3] In Spain, the strategies that aim to address the problem of bacterial resistance include the recent development of several consensus guidelines on the management of paediatric infections.[4,5] Yet a recent study showed that there is poor compliance with the recommendations in the choices of antibiotics for empirical treatment made by paediatricians in some autonomous communities like Aragón and La Rioja, which were evaluated together.[4]

The main aim of this study was to determine the frequency of antibiotic prescription and the pattern of use of these drugs for the treatment of ARTIs diagnosed in primary care in the paediatric population of Aragón.

Materials and methods

We conducted a retrospective observational study of antibiotic prescription in cases of ARTI diagnosed in primary care in the paediatric population of Aragón between September 1, 2009 and August 31, 2010.

We collected diagnostic and prescription data from the OMI-AP database, which holds the electronic medical records of all individuals served by the Aragón public health system (98.6% of the population of Aragón).

We selected the records corresponding to patients 0–14 years of age diagnosed with one of the following ICPC codes: acute otitis media (H71), strep throat (R72), nonspecific upper respiratory tract infection (R74), acute tonsillitis (R76) and acute bronchitis/bronchiolitis (R78). We combined the diagnoses coded R72 and R76 under the label ''acute pharyngotonsillitis'' because during the period under study, paediatricians in Aragón did not regularly use rapid tests allowing the differential diagnosis of streptococcal and viral pharyngotonsillitis.

Each record corresponded to a single episode or diagnosis, and included the anonymous code for the patient, the sex, date of birth, ICPC code and, if a prescription was made, the code corresponding to the prescribed antibiotic in the Anatomical Therapeutic Chemical (ATC) classification. We considered that a prescription was associated to an episode of disease if it was issued within 15 days after the diagnosis.

We classified the antibiotics according to the ATC/DDD 2010 Index of the World Health Organization (OMS).[6]

We described the frequency of ARTI and antibiotic prescription in the paediatric population during the year of the study. We also calculated the proportion of episodes treated by type of diagnosis and age group (<2 years, 2–4 years, 5–9 years and 10–14 years) to determine the existing pattern of prescription.

Results

During the period under study, a total of 89 800 children, with a mean age of 4.3 years and 48% of whom were female, were diagnosed with ARTI. The overall prevalence of diagnosis with ARTI in children in Aragón was 50%, and the