GENDER SPECIFIC DRUG USE IN PEDIATRICS: REAL WORLD DATA ANALYSIS ON BEHALF OF MUSIC PROJECT

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Background

There are several gender differences on disease prevalence in paediatric population (e.g. respiratory diseases, infections). Although boys and girls with same diseases show different symptoms, development and treatment response because of sex, gender differences in medicine use in children and adolescents are not in-depth explored.

Objectives

To provide an overview of gender-specific pattern of drug use in outpatient pediatric population and to explore the traceability of their use through a real word data analysis within MUSiC project.

Methods

A drug utilization study was performed in pediatric population through anonymized claims databases of Caserta Local Health Unit (LHU), covering a population of around 1 million subjects. Children with at least one dispended drug between January 1st, 2009 and December 31st, 2015 were identified as treated children. Yearly prevalence per 100 inhabitants (with 95% CI) was measured and stratified by Anatomic Therapeutic Classification (ATC) codes, age categories (according ICH classification) and gender. Sensitivity analyses were performed in the last year of observation, 2015, in order to check gender differences for specific therapeutic classes and active substances use.

To assess the traceability of medicine dispended in pediatrics we analyzed pharmacy sales data for pediatric-specific formulations distinguishing between National Health System-covered and private purchase of drugs.

Results

Among 274,628 residents aged <18 years in Caserta LHU, 224,070 (82%) had at least one drug dispensing during the observation period. Yearly prevalence of overall drug use in children decreased by 10% over calendar time, from 63.5 (CI 95% 63.3-63.7)/100 inhabitants in 2009 to 53.5 (53.3-53.8)/100 in 2015. This trend seems to be mostly due to antimicrobial, with yearly prevalence from 57.1 (56.9-57.4)/100 in 2009 to 42.9 (42.7-43.1)/100 in 2015. Prevalence use for girls was lower than for boys, even if the decreasing trend over time was consistently observed in both sexes.

Similarly, higher prevalence was found in boys than in girls when looked at the top three therapeutic classes used in paediatrics overall on 2015, as follows: 43.5 (43.2-43.8)/100 in boys vs. 42.3 (42.0-42.6)/100 in girls, for anti-infectives; 29.0 (28.7-29.2)/100 vs. 26.1 (25.8-26.4)/100, for

respiratory drugs; and 13.2 (12.9-13.4)/100 vs. 11.3 (11.1-11.5)/100, for hormones. These gender differences remained while exploring each age category.

Amoxicillin clavulanate was the mostly prescribed antibiotic drug (36.2% of treated boys vs. 34.3% of treated girls), followed by beclomethasone, among respiratory drugs, (28.4% vs. 28.3% respectively) and betamethasone, among hormonal preparations, (21.3% vs. 18.9%, respectively).

Regarding traceability, we observed relevant differences among privately purchased and NHS-covered drugs across different drug formulations. For instance, around 40% of overall products containing amoxicillin clavulanate for specific use in children is privately purchased, especially in children less than 1 year old.

Conclusions

Trend of dispended medicines in children decreased from 2009 to 2015, probably due to a decrease of antibiotic class use, even if the mostly used drug in children remains amoxicillin/clavulanic acid.

Gender seems to be an important factor to consider when examining patterns of drug use in children.

Traceability of medicines by using only dispensing data is not comprehensive of overall drug used in children, particularly for less expensive formulations.