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Systemic antibiotic consumption in a population of South Korea between 2009 and 2013

Juhee Park and Soo-Ok Lee
Health Insurance Review and Assessment Service, South Korea

Background: This study was conducted to investigate overall systemic antibiotic consumption levels and specific patterns using standardized Anatomical Therapeutic Chemical/Defined Daily Dose (ATC/DDD) methodology.

Methods: The administrative data from South Korean Health Insurance Review & Assessment (HIRA) were used to examine trends in antibiotic consumption. Main outcome measures are DDD (Defined Daily Dose) by ATC (Anatomical Therapeutic Chemical classification) class. Antibiotic usage data were collected for systemic antibacterial (ATC category J01). Detailed information on indications and seasonal variations, age and institutional determinants on antibiotic consumption were also explored.

Results: Total consumption was slightly increased from 25.8 DID (the number of DDD per 1,000 inhabitants per day) to 26.7DID from 2009 to 2013 slightly. These values are higher than the average (21.2 DID) of OECD 2012. Consumption figures under 10 years of age (44.8 DID and 51.5 DID in 2009 and 2013, respectively) were even higher than figures in aged 60-69 (34.0 DID and 33.4 DID in 2009 and 2013, respectively) especially the measure of average in aged 2-5 was very high (65 DID). The most frequently prescribed antibiotic was combinations of penicillins, incl. beta-lactamase inhibitors (J01CR, 24.32%, in 2013), followed by second-generation cephalosporins (J01DC, 18.24%) and macrolides (J01FA, 13.82%). 49.4% (6.6 DID) among the outpatients of acute upper respiratory infections and 54.6% (5.8 DID) among the outpatients of other acute upper respiratory infections were prescribed antibiotics.

Conclusions: Overall antibiotic prescription usage has increased slightly. However, use of cephalosporins is gradually increasing, except first-generation cephalosporins and the amount of antibiotics in children is still a high level, which can affect to antibiotic resistance. In South Korea, using various policies, it is intended to inhibit the use of antibiotics. During 2000s, antibiotic prescriptions for acute respiratory tract infection (RTI) decreased due to various program including Evaluation Project on Appropriate Prescribing (EPAP) which is analyzing prescribing pattern and providing physicians' feedback began in 2001. Efforts to increase prudent antibiotic use, especially for upper respiratory system infections and for younger children, should be made to decrease antibiotic use.

sooklee@hiramail.net

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