Introduction

- Antimicrobial resistance (AMR) is a major multinational public health concern.
- The Japanese government set goals in its AMR action plan to reduce use of oral cephalosporins, macrolides, and quinolones by half between 2013 and 2020.
- We evaluated the nationwide antimicrobial use (AMU) of children in Japan using the dispensing receptive from the national administrative database in regard to the national AMR action plan.

Methods

Studiedesign: Retrospective study

Database: National health claims database

Study period: Between January 2013 and December 2016

Inclusion criteria: Children under 15 years old in Japan

Type of antimicrobials

Antimicrobials for systemic use were coded as J01 according to the World Health Organization (WHO) Anatomical Therapeutic Chemical (ATC) classification system. A total of 41 antimicrobials were included in the analysis, and were divided into the following 17 subgroups.

- Data were presented as days of therapy (DOTs) per 1000 pediatric inhabitants per day (DOTs/PID).

Statistical analysis

A value of \( P \) for trend < 0.05 was considered significant. All analyses were conducted using Stata 13 SE (Stata Corp., College Station, TX).

Contact Information

Noriko Kinoshita, M.D.
Department of Infectious Diseases
National Center for Global Health and Medicine, 1-21-1 Togayama, Shinjuku-ku, Tokyo 162-8655, Japan
Phone: +81-3-3202-7181
Fax: +81-3-6287-0738
E-mail: kinoshita@hosp.ncgm.go.jp

Nationwide outpatient oral antimicrobial utilization by children in Japan (2013-2016)

Noriko Kinoshita1,2, Naho Morisaki3, Kazuhiro Uda1,4, Masashi Kasai5, Yuho Horikoshi6, Isao Miyairi7

1Division of Infectious Diseases, Department of Medical Subspecialties, 2Department of Social Medicine, National Center for Child Health and Development, 3Division of Infectious Disease Control and Prevention Center, National Center for Global Health and Medicine

Results

- A total of 1,386,933 oral antimicrobial prescriptions were identified during 2013-2016. No statistically significant changes were observed in total antimicrobial use in children (2013: 28.58 DOTs/PID; 2016: 28.70 DOTs/PID; \( P_{\text{trend}} = 0.25 \)) and amount of cephalosporins, macrolides, and quinolones prescribed.

- We also observed that prescription rates of antimicrobials were highest among children aged 1 to 5 years of age, peaking at 1 year of age. All antimicrobials except for tetracyclines followed a similar pattern, meaning a large DOTs of broad-spectrum antimicrobials were being dispensed for infants and young children. This pattern was similar to those reported in studies from other countries, which also report frequent use of antimicrobials for infants

Discussion

- The DOTs of macrolides, third-generation cephalosporins, and quinolones, which are targets for the government’s AMR action plan, did not change significantly either. On the contrary, there was a gradual increase in the use of quinolones in one-year-olds. Quinolones comprised 8.6% of all antimicrobials prescribed in this age group, which is higher than that in other countries, suggesting that reduction in quinolones may be a good target for intervention.

- We also observed that prescription rates of antimicrobials were highest among children aged 1 to 5 years of age, peaking at 1 year of age. All antimicrobials except for tetracyclines followed a similar pattern, meaning a large DOTs of broad-spectrum antimicrobials were being dispensed for infants and young children.

Conclusion

Interim assessment of the national AMR action plan revealed that the goals would not be attainable without significant interventions for children by 2020. Overall antimicrobial prescriptions as well as cephalosporin, macrolide, and quinolone prescriptions were most prevalent in children aged 1 year. Antimicrobial stewardship targeting infants and younger children is necessary.

Reference


Sources of Funding: This study was performed as a part of a grant funded by the Ministry of Health, Labour and Welfare (MHLW Shinko-02).