Geographical analysis of Antimicrobial Consumption Surveillance using the National Database of Health Insurance Claims and Specific Health Checkups of Japan (NDB JAPAN) 2011-2013

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BACKGROUND

Although monitoring antimicrobial use (AMU) in medical institutions is important for countermeasures against antimicrobial resistance (AMR), there has been little data regarding AMU in Japan based on the prefecture unit. Accordingly, our objective was to assess whether AMU monitoring through the National Database of Health Insurance Claims and Specific Health Checkups of Japan (NDB), which archives the e-claim data, could be useful.

METHODS

The quantities and patterns of oral and parenteral AMU from 2011 to 2013 in Japanese medical institutions in 47 prefectures of Japan were analyzed using NDB collected through the Ministry of Health, Labor and Welfare of Japan, which accounted for 98% of total claim data in Japan. The data were analyzed in accordance with the Anatomical Therapeutic Chemical (ATC) classification using the defined daily dose (DDD) as a measurement unit, as recommended by the WHO Collaborating Centre for Drug Statistics Methodology. The AMU data was normalized and reported as DDDs per 1,000 inhabitants in each prefecture per day (DID). Trend of DID from 2011 to 2013 in each prefecture was analyzed and inter-regional comparison was performed.

RESULTS

All prefectures demonstrated increased trends in both oral and parenteral AMU (DID) from 2011 to 2013. The median (max, min) AMU (DID) for oral and parenteral AMUs in 2011, 2012, 2013 were 12.7 (15.3, 10.1), 13.2 (15.9, 10.8), 13.2(15.9, 10.9), and 0.84 (1.04, 0.54), 0.89 (1.05, 0.57), 0.92 (1.11, 0.62), respectively.

Parenteral AMU in Japan

Regional differences of AMU in Japan when the data was analyzed based on dividing Japan into three regions (Eastern, Central, and Western Japan), there were significant geographical difference in both oral and parenteral AMU, with the highest values in the Western Japan.

CONCLUSIONS

AMU has increased from 2011 and 2013 regardless of the dosage form in all prefectures in Japan. Geographical analysis demonstrated regional characteristics of AMU in Japan.

ACKNOWLEDGEMENT

This work was supported by JSPS KAKENHI Grant Number 15K08843, Health Labour Sciences Research Grant Number H25-Shinkou-Wakate-002 and H28-Shinkougyousei-Ippan-004. There were no conflicts of interest to declare.