Antibiotic use in 61 acute care hospitals in Switzerland: trends over the years 2004 – 2012 and comparison with Europe

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Aims

To describe antibiotic use in a sentinel network of Swiss acute care hospitals in the frame of the program anresis.ch and to compare it to European antibiotic use level.

Method

• Antibiotics for systemic use (class J01 of WHO Anatomical Therapeutic Chemical (ATC) system, 2013) were collected prospectively over the years 2004-2012 from 61 acute care hospitals accounting for 51% of the total number of bed-days in the country: 38 small-size hospitals (< 200 beds), 14 medium-size hospitals (200 – 500 beds), 9 large-size hospitals (> 500 beds).

• Aggregated data were converted into defined daily doses (DDD) and antibiotic use expressed in number of defined daily doses per 100 bed-days (DDD/100BD) or in DDD per 1000 inhabitants and per day (DDD/1000ID).

• A one-level mixed model for repeated measurements and regression analysis was used to compare antibiotic use over the years.

Results

1. Antibiotic use rose from 45.4 DDD/100BD in 2004 to 57.8 in 2012 (p < 0.001).

2. Amoxicillin-clavulanic acid was the most used antibiotic (18.4 DDD/100BD in 2012, 32% of J01 use).

3. While quinolone use initially increased since 2004, it has been decreasing since 2007 (8.0 in 2007 to 6.1 DDD/100BD in 2012, p < 0.001).

4. We noticed an increase in carbapenem use between 2004 and 2012 in the 3 categories of hospital size (overall, + 113%, p < 0.001).

5. In 2011 the Swiss antibiotic consumption density was close to the European median (1.6 versus 1.8DDD/1000ID), but with 5% the proportion of carbapenem use was higher than the European median (3.2%)¹.

Conclusions

• Detailed information about trends in antibiotic use is provided by the program anresis.ch from a large sample of Swiss acute care hospitals.

• We observed a significant increase in antibiotics for systemic use over the study period, while the European median did not differ significantly¹.

• Moreover, carbapenem use increased over the study period. This could be explained by the rise of ESBL-producing strains worldwide, towards which carbapenems remain the treatment of choice in case of severe infections². The proportion of carbapenem use was higher than the European median and this could be a cause of concern regarding the evolution of carbapenem-resistant enterobacteriaceae.

References


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