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Publication Only

Antimicrobials: Antibiotic usage

Penicillin use in eastern Europe: first results of the WHO/Europe-ESAC project

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Objectives

There is no reliable data on antimicrobial use in non-European-Union (EU) south-eastern European countries (SEE) and newly independent states (NIS). We aimed to collect valid, representative, comparable total national wholesales data on systemic antimicrobial use in these non-EU countries of the World Health Organization (WHO) European Region. In this abstract we report on penicillin use.

Methods

Valid 2011 total (outpatients and hospital care) data on beta-lactam antibacterials, penicillins (ATC group J01C) use of 5 SEE (Bosnia and Herzegovina, Montenegro, Serbia, Turkey – plus Kosovo[°]) and 7 NIS (Armenia, Azerbaijan, Belarus, Georgia, Kyrgyzstan, Republic of Moldova, Tajikistan) were analysed according to the WHO Anatomical Therapeutic Chemical (ATC)/Defined Daily Doses (DDD) methodology and expressed in DDD/1000 inhabitants/day (DID). Beta-lactam antibacterials were qualified according to narrow-spectrum penicillins (NSP), broad-spectrum penicillins (BSP), penicillinase-resistant penicillins (PRP) and combinations with beta-lactamase inhibitors (COP).

Results

Total penicillin use varied from 6.1 DID for Armenia to 18.2 DID for Tajikistan. Highest proportional use was observed for Georgia (68% of total antibiotic use, 14.2 DID) followed by Azerbaijan (66%, 11.4 DID). NSP use was low and varied from 0.02 DID (0.1%) in Belarus to 1.3 DID (3.4%) in Montenegro. BSP use was highest in Tajikistan (15.9 DID, 46%) followed by Montenegro (10.9 DID, 28%) and Azerbaijan (9.7 DID, 56%); and lowest in Turkey (2.9 DID, 7%). BSP covered mainly amoxicillin and ampicillin. Highest use of COP was observed for Turkey (13.9 DID, 33%) and Georgia (9.5 DID; 45%) representing mainly co-amoxiclav (13.0 DID, 31% and 9.0 DID, 43% respectively). Lowest COP use was noted for Azerbaijan (0.5 DID, 3%) and Kyrgyzstan (0.6 DID, 2%). Parenteral penicillin use was highest in Azerbaijan (6.7 DID) representing 39% of total antibiotic use, mainly ampicillin (5.3 DID, 31%) followed by the combination of benzylpenicillin/procainbenzylpenicillin/benzathine benzylpenicillin (1.0 DID, 6%) and lowest in Kosovo (0.04 DID, 0.1%).

Conclusions

We present for the first time a standardised and validated data set of systemic penicillin use in eastern Europe. Penicillins represented the most frequently used antibiotic subgroup for all participating countries with amoxicillin being most widely used in all countries, except Georgia and Turkey. More in depth studies are needed to understand the remarkably high parenteral use of penicillins, which cannot be explained by hospital use only. These data will facilitate auditing of antimicrobial use and evaluation of the implementation of guidelines and public health policies to promote its judicious use.

[°]Kosovo (in accordance with UN Security Council resolution 1244(1999))