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Review of Utilization of Cardiovascular Medicines by Daily Defined Dose in the Czech Republic and Slovak Republic

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To the Editor,

Drug utilization is an important field of drug policy and an integral part of public health internationally. This area of research attracts increasing interest but the pioneering work was done 50 years ago when the first drug consumption report from six European countries for the period of 1966-1967 showed great differences in drug utilization between population groups (WHO, 1968). These results gave important stimulus for creation of Anatomical Therapeutic Chemical (ATC) classification and technical unit of measurement called the Defined Daily Dose (DDD) which is specified as "*the assumed average maintenance dose per day for a drug used for its main indication in adults*" that dealt with the objections against traditional units of measurement in drug utilization studies (WHO, 2016). The ATC/DDD methodology has in the meantime proved its suitability in drug utilization monitoring and research.

As mentioned previously, consumption of pharmaceuticals is often used as a basis for comparison between countries. Based on our professional expertise, we decided to analyze the consumption of cardiovascular medicines by DDD in the Czech Republic and Slovak Republic within all ATC groups reported to OECD (OECD, 2016a). According to OECD indicator results, the Slovak Republic showed in 2014 a higher pharmaceutical consumption by DDD in ATC group C (cardiovascular system) compared to the Czech Republic (OECD, 2016a).

We decided to proceed with a thorough analysis of available consumption data with the aim to better understand the cause behind the differences between the Czech Republic and Slovak Republic. For the Czech Republic, we used data from the Czech State Institute for Drug Control which is also the reporting source for OECD health statistics (SUKL, 2015). The Czech data includes distribution of medicines to individual pharmacies. The Slovak Republic reports data to OECD based on distributors' quarterly reports sent to the Slovak State Institute for Drug Control (OECD, 2016b). We, however, used data obtained from the National Health Information Center which collects data from health insurance companies and hospital pharmacies (NCZI, 2015). Then we measured consumption by actual DDD per 1000 inhabitants per day for the year 2014.

Our observations were surprising with a potentially significant impact on future reporting from the Slovak Republic. We found that the Slovak Republic does not report consumption to OECD by actual DDD. DDD has changed for some ATC codes with time and for some ATC codes DDD has changed more than once, for example for simvastatin – in 1994 and 2009 (WHO, 2017). As DDD alterations have not been updated in reports from

the Slovak Republic, reported consumption of simvastatin calculated by DDD from 1994 is twice as high as consumption calculated by actual DDD. A similar situation is with other statins (atorvastatin, fluvastatin, lovastatin and pravastatin) which DDD increased in 2009 (WHO, 2017). Since drug consumption in ATC codes in which DDD has changed is relatively high in the Slovak Republic, our analysis has shown significantly different consumption data in cardiovascular medicines based on actual DDD compared to consumption reported to OECD. Additionally, we have confirmed that consumption in the Czech Republic is reported by actual DDD. Finally, we suggest that for the purpose of adequate and correct international comparison of drug utilization it will be necessary for official authorities in Slovak Republic to start reporting data by actual DDD.

Disclosures

Responsibility for the information and views set out in this letter lies entirely with the authors.

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