Abstract

Utilization of anticoagulants in the Czech Republic and the neigbouring countries of Central and Eastern Europe during 2007–2019

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Background and aim: Anticoagulants are widely used drugs especially indicated for the venous thromboembolism and atrial fibrillation. Increasing incidence of these diseases can be associated with an increasing trend in the utilization of anticoagulants. So far, there have been published studies focused mainly on the situation in the Western world, however data on the utilization of anticoagulants in Central and Eastern Europe has been rather lacking. The aim of this study was to analyze the utilization of anticoagulants in the Czech Republic (CR), Croatia, Hungary, Romania and Slovakia during 2007−2019.

Methods: A retrospective utilization analysis was performed using the ATC/DDD methodology according to the WHO Collaborating Center for Drug Statistics Methodology. Drugs from the group B01AA (vitamin K antagonists), B01AB (heparins), B01AE (direct thrombin inhibitors), B01AF (direct factor Xa inhibitors) and B01AX (other anticoagulants, antithrombotics) were included in the analysis. The first year of utilization analysis dated to one year before launching of the first direct oral anticoagulant (NOAC) on the market in the individual country. Utilization for each drug was assessed per calendar year and was expressed as the number of DDD per thousand inhabitants per day (DDD/TID).

Results: In the study period, an increasing trend in utilization of anticoagulants was observed. In the CR from 15.52 DDD/TID in 2007 to 31.42 DDD/TID in 2019, in Croatia from 7.32 to 19.15 (2008−2019), in Hungary from 9.27 to 25.26 (2007−2019), in Romania from 3.08 to 14.29 (2007-2019) and in Slovakia from 10.89 to 28.64 DDD/TID (2009–2019). In 2019, oral anticoagulants covered in the CR 65.22%, in Croatia 79.75%, in Hungary 60.43%, in Romania 71.88% and in Slovakia 57.49% of the overall utilization. After a stable increase in the utilization of vitamin K antagonists, a slight decrease in their utilization was observed in the CR (from 11.70 to 11.16 DDD/TID 2015–2019), in Croatia (from 9.29 to 8.53 DDD/TID 2016–2019) and in Romania (from 4.97 to 4.87 DDD/TID 2016–2019). A decrease occurred in Hungary (from 8.76 to 6.93 DDD/TID 2014–2019) and in Slovakia (7.06 to 5.69 DDD/TID 2013–2019). The increase in NOAC utilization in the CR was from 0.002 DDD/ TID in 2008 to 8.33 DDD/TID in 2019, in Croatia from 0.001 to 6.73 (2009–2019), in Hungary from 0.009 to 8.31 (2010−2019), in Romania from 0.0005 to 5.40 (2008−2019) and in Slovakia from 0.03 to 10.77 DDD/TID (2009−2019). In 2019, the most widely used NOAC in the CR, Croatia, Hungary and Slovakia was rivaroxaban, its utilization was 3.14, 3.33, 3.33 and 3.81 DDD/TID. In Romania, the most widely used NOAC in 2019 was apixaban, its utilization was 2.63 DDD/TID.

Conclusion: Despite an utilization increase, countries show a number of national characteristics that need to be further analyzed in order to better understand the various factors influencing the utilization of anticoagulants.