Demand and Availability of Intravenous Injections for Patients with Retinal Diseases in the Russian Federation

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OBJECTIVES

Retinal diseases is one of the leading causes of blindness and impairment in Russia (25% of all cases of visual impairment). The most common retinal diseases that cause impairment are age-related macular degeneration (AMD) and diabetic macular edema (DME) with diabetic retinopathy. According to the Russian clinical guidelines, the first-line therapy for AMD and DME surgical treatment is intravenous injection. This study aims to estimate the availability of anti-VEGF treatment for patients with AMD and DME and demand for intravitreal injections (IVI) in the Russian Federation

METHODS

The provision level of angiogenesis inhibitors in Russia was estimated based on hospital accounts data for 2019. Comparative analysis of the level of availability of patients with intravenous injections in Russia and other countries (based on the IQVIA report of anti-VEGF vial purchases) was carried out. Demand for IVI was modelled on the basis of statistical records of the incidence and dissemination of AMD and DME in 2019 and the number of people in a population.

RESULTS

Average number of injections per patient with AMD amounted to 2.14 and 2.57 cases with DME in Russia (table 1), compared to the average optimal indicator for AMD and DME equal to 7-12 injections for the first year of therapy. Average number of intravenous injections for patients with AMD is 36.09% of total number of hospitalizations with this disease and for patients with DME 34.26% respectively. In comparison with OECD countries, in Russia availability of anti-VEGF medicine for patients is 4.2 bottle per 10.000 people (table 2), which is 11.7 times lower than in the selected OECD countries.

CONCLUSIONS

Average number of injections per patient with AMD amounted to 2.14 and 2.57 cases with DME in Russia, compared to the average optimal indicator for AMD and DME equal to 7-12 injections for the first year of therapy.

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Table 1. Number of intravitreal administrations of the drugs per a patient by 4 diagnosis codes in federal districts of the Russian Federation

Federal subjects of Russia	H34.8 Other retinal vascular occlusions	H35.2 Other proliferative retinopathy	H35.3 Degeneration of macula and posterior pole	H36.0 Diabetic retinopathy
Russian Federation	1,73	1,88	2,14	2,57
Central Federal District	1,8	2,03	2,42	4,2
Northwestern Federal District	1,78	1,14	2,21	2,6
Southern Federal District	1,78	1,59	1,91	1,85
North Caucasian Federal District	1,13	2,25	1,48	1,86
Volga Federal District	1,57	1,81	2,23	2,33
Ural Federal District	2,22	1,91	2,24	2,31
Siberian Federal District	1,27	2	1,63	1,44
Far Eastern Federal District	1,94	2,58	2,03	2,59

Table 2. Number of purchased vials of angiogenesis inhibitors per 10 000 in the countries of the Organization for Economic Cooperation and Development*

OECD countries	Number of anti-VEGF, vials	Population on Jan. 1, 2019	Number of anti-VEGF per 10 000 population, vials
Switzerland	203 669	8 591 000	237
Denmark	124 225	5 772 000	215
Australia	541 816	25 203 000	215
Slovenia	33 673	2 079 000	162
Canada	600 856	37 411 000	161
United Kingdom	1 027 538	67 530 000	152
Belgium	137 966	11 539 000	120
Germany	730 880	83 517 000	88
Slovakia	45 683	5 457 000	84
Netherlands	119 296	17 097 000	70
Japan	701 516	126 860 000	55
Spain	254 922	46 737 000	55
Italy	288 426	60 550 000	48
Norway	25 496	5 379 000	47
Hellenic Republic	46 688	10 474 000	45
USA*	1 376 830	329 065 000	42
Turkey	210 827	84 430 000	25
South Korea	95 421	51 225 000	19
Poland	69 276	37 888 000	18
Brazil	143 463	211 050 000	7
Russian Federation	61 956	145 872 000	4

** Sources. Compiled by the authors based on the IQVIA report on the number of packages of angiogenesis inhibitors (ranibizumab, aflibercept) for 2019, UN population data in the analyzed countries*