



Drug consumption and costs of the glaucoma therapy in the Republic of Serbia



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1. Introduction

Glaucoma is the leading cause of blindness worldwide and it is estimated that more than 70 million people suffer from this disease. The main goal of glaucoma therapy is to preserve sufficient visual function and the patient's quality of life. Drug therapy is the main type of glaucoma treatment because it is effective, safe, practical, cheap and most of them are prescribed in the form of drops for local use.

2. Methods

The research is based on a retrospective analysis of data for the period from 2015 to 2020, which were collected from the official websites of the Agency for Medicines and Medical Devices of Serbia and the Institute for Public Health of Serbia "Dr. Milan Jovanović Batut" for examining the consumption and costs of medicines in the Republic of Serbia.

3. Results

The annual consumption of all antiglaucoma drugs in the Republic of Serbia in the period from 2015–2020 is presented on the Table 1. As for drugs that are not in fixed combinations, the highest consumption was of drug from the group of prostaglandin analogues (latanoprost), followed by drug from the group of beta blockers (timolol). In the other hand, betaxolol consumption was lowest, as well as brimonidine (10 ml bottle) and pilocarpine. The most frequently used fixed combination of drugs was timolol-dorzolamide, while the least used were timolol-brimonidine and brimonidine-brinzolamide. Based on a review of the costs of antiglaucoma drug therapy per patient on a monthly and annual basis in the Republic of Serbia over a five-year period (Table 2), it can be seen that latanoprost is the drug with the lowest price for monthly and annual therapy. In addition, timolol also had a lower price compared to other drugs in glaucoma therapy. The price of the monthly therapy of the fixed combination of timolol-dorzolamide as well as the combination of timolol-latanoprost was lower than the price of the monthly therapy of other drug combinations (Table 2).

Table 1. Annual consumption of drugs in glaucoma therapy in the Republic of Serbia in the period 2015–2020.

ATC INN	Pack	Year					
		2015	2016	2017	2018	2019	2020
S01EA05 brimonidine	5ml	94 761	113881	128420	143756	172107	174308
	10ml	14 476	13 561	12 605	14 869	3 292	9 321
S01EB01 pilocarpine	10ml	35 976	31 155	8 988	8 107	7 455	6 385
S01EC03 dorzolamide	5 ml	21 269	31 711	14 043	30 090	31 527	29 326
S01EC04 brinzolamide	5 ml	48 532	66 388	63 229	9 838	77 240	69 680
S01ED01 timolol	5ml	317023	391390	312 039	105100	216280	319280
	10ml	22 271	18 798	19 187	11 756	2 727	5 927
S01ED02 betaxolol	5ml	3 239	3 804	3 467	-	-	-
S01EE01 latanoprost	2.5ml	401748	310339	319 404	377329	404291	409735
S01EE04 travoprost	2.5ml	20 713	25 088	26 105	11 410	23 650	31 340
S01EE03 bimatoprost	3ml	28 468	42 465	53 753	61 568	49 411	43 640
S01EE05 tafluprost	30x0.3ml	11 090	13 406	19 065	37 498	57 300	65 812
S01ED51 timolol, bimatoprost	3ml	27 669	36 420	40 403	47 269	40 019	36 329
S01ED51 timolol, latanoprost	2.5ml	41 411	51 511	38 898	48 457	51 841	53 708
S01ED51 timolol, travoprost	2.5ml	894	752	1 966	6 750	6 750	10 530
S01ED51 timolol, dorzolamide	5ml	343393	305230	112 507	336880	409419	382005
S01ED51 timolol, brinzolamide	5ml	2 395	5 826	31 306	7 940	52 945	59 540
S01ED51 timolol, brimonidine	5ml	-	1 304	3 937	2 876	1 813	1 459
S01EC54 brimonidine, brinzolamide	5ml	-	-	-	-	870	8 160

4. Conclusion

Data showed that latanoprost had the highest consumption, followed by timolol and the timolol-dorzolamide combination. Timolol was the most affordable, and drug prices generally decreased from 2015 to 2020. The biggest consumption drop occurred for pilocarpine.

Table 2. Costs of antiglaucoma therapy per patient on a monthly and annual basis in the Republic of Serbia in the period 2015–2020.

INN, Pack	DDD	MDC (ml)	Price (RSD)	Year					
				2015	2016	2017	2018	2019	2020
Brimonidine 5ml	0.2	6	P	639.80	639.80	639.80	568.50	563.57	563.57
			IDDD	25.59	25.59	25.59	22.74	22.54	22.54
			MT	767.76	767.76	767.76	682.2	676.28	676.28
			AT	9 213.12	9 213.12	9 213.12	8 186.40	8 115.36	8 115.36
			P	566.40	566.40	566.40	562.00	557.20	557.20
Brimonidine 10ml	0.2	6	IDDD	-	-	-	-	-	-
			MT	566.40	566.40	566.40	562.00	557.20	557.20
			AT	6 796.80	6 796.80	6 796.80	4 744.00	6 686.40	6 686.40
			P	155.7	155.7	155.7	154.5	153.17	153.17
			IDDD	6.23	6.23	6.23	6.18	6.13	6.13
Pilocarpine 12ml	0.4	12	MT	186.84	186.84	186.84	185.4	183.8	183.8
			AT	2 242.08	2 242.08	2 242.08	2 224.80	2 205.60	2 205.60
			P	588.90;	588.90;	588.90;	584.30;	579.30;	579.30;
				464.40	464.40	464.40	431.40	427.70	427.70
			IDDD	35.33;	35.33;	35.33;	35.05;	34.75;	34.75;
Dorzolamide 5ml	0.3	9		27.86	27.86	27.86	25.88	25.66	25.66
			MT	1059.81;	1059.81;	1059.81;	1051.53;	1042.53;	1042.53;
				835.75	835.75	835.75	776.36	769.71	769.71
			AT	13917.72	13917.72	13917.72	12618.36;	12510.36;	12510.36;
				10029.00	10029.00	10029.00	9316.32	9236.52	9236.52
Brinzolamide 5ml	0.2	6	P	848.20	848.20	848.20	748.20	647.90	647.90
			IDDD	33.93	33.93	33.93	29.95	25.92	25.92
			MT	1 017.84	1 017.84	1 017.84	898.56	777.48	777.48
			AT	12214.08	12214.08	12 214.08	10782.72	9 329.76	9 329.76
			P	252.00	252.00	242.00	240.10	237.97	237.97
Timolol 5ml	0.2	6	IDDD	10.08	10.08	10.08	9.60	9.52	9.52
			MT	302.40	302.40	302.40	288.12	285.56	285.56
			AT	3 628.80	3 628.80	3 628.80	3 547.44	3 426.72	3 426.72
			P	353.40	353.40	353.40	350.60	347.60	347.60
			IDDD	-	-	-	-	-	-
Timolol 10ml	0.2	6	MT	353.40	353.40	353.40	350.60	347.60	347.60
			AT	4 240.80	4 240.80	4 240.80	4 207.20	4 171.20	4 171.20
			P	270.40	270.40	270.40	-	-	-
			IDDD	10.82	10.82	10.82	-	-	-
			MT	324.48	324.48	324.48	-	-	-
Betaxolol 5ml	0.2	6	AT	3 893.76	3 893.76	3 893.76	-	-	-
			P	554.60;	554.60;	554.60;	530.10;	525.50;	525.50;
				638.40	638.40	638.40	609.40	604.10	604.10
			IDDD	22.18;	22.18;	22.18;	21.20;	21.02;	21.02;
				25.54	25.54	25.54	24.38	24.16	24.16
Latanoprost 2.5ml	0.1	3	MT	665.52;	665.52;	665.52;	636.12;	630.60;	630.60;
				766.08	766.08	766.08	731.28	724.92	724.92
			AT	7986.24;	7986.24;	7986.24;	7633.44;	7567.20;	7567.20;
				9192.96	9192.96	9192.96	8775.36	8699.04	8699.04
			P	1 419.90	1 419.90	1 419.90	1 408.80	1 396.67	1 396.67
Bimatoprost 3ml	0.1	3	IDDD	47.33	47.33	47.33	46.96	46.55	
			MT	1 419.90	1 419.90	1 419.90	1 408.80	1 396.67	1 396.67
			AT	17038.80	17038.80	17038.80	16905.60	16760.04	16760.04
			P	1 464.20	1 464.20	1 464.20	1 122.20	1 018.50	1 018.50
			IDDD	58.57	58.57	58.57	44.89	40.74	40.74
Travoprost 3ml	0.1	3	MT	1 787.04	1 787.04	1 787.04	1 346.64	1 222.20	1 222.20
			AT	21084.48	21084.48	21084.48	16159.68	14666.40	14666.40
			P	1 657.50	1 657.50	1 657.50	1 644.40	1 631.87	1 631.87
			IDDD	-	-	-	-	-	-
			MT	1 657.50	1 657.50	1 657.50	1 644.40	1 631.87	1 631.87
Tafluprost 30x0.3ml	0.1	3	AT	19890.00	19890.00	19890.00	19732.80	19582.44	19582.44
			P	531.00;	531.00;	531.00;	526.90;	522.40;	522.40;
				638.40	638.40	638.40	633.40	629.37	629.37
			IDDD	21.24;	21.24;	21.24;	21.08;	20.90;	20.90;
				25.54	25.54	25.54	25.34	25.17	25.17
Timolol, Dorzolamide 5ml	0.2	6	MT	637.20;	637.20;	637.20;	632.28;	626.88;	626.88;
				766.08	766.08	766.08	760.08	755.24	755.24
			AT	7646.40;	7646.40;	7646.40;	7587.36;	7522.56;	7522.56;
				9192.96	9192.96	9192.96	9120.96	9062.88	9062.88
			P	1 187.40	1 187.40	1 187.40	1 178.10	1 168.00	1 168.00
Timolol, Brinzolamide 5ml	0.2	6	IDDD	47.50	47.50	47.50	47.12	46.72	46.72
			MT	1 424.88	1 424.88	1 424.88	1 413.72	1 401.60	1 401.60
			AT	17098.56	17098.56	17098.56	16964.64	16819.20	16819.20
			P	598.90;	598.90;	598.90;	575.90;	575.90;	577.27;
				638.40	638.40	638.40	628.00	628.00	628.00
Timolol, Latanoprost 3ml	0.1	3	IDDD	23.96;	23.96;	23.04;	23.04;	23.04;	23.09;
				25.54	25.54	25.12	25.12	25.12	25.12
			MT	718.68	718.68;	718.68;	691.08;	691.08;	692.72;
				766.08	766.08	766.08	753.60	753.60	753.60
			AT	8 624.16	8624.16;	8624.16;	8292.96;	8292.96;	8312.64;
Timolol, Bimatoprost 3ml	0.1	3		9192.96	9192.96	9192.96	9043.20	9043.20	9043.20
			P	1 581.40	1 581.40	1 581.40	1 569.10	1 555.57	1 555.57
			IDDD	-	-	-	-	-	-
			MT	1 581.40	1 581.40	1 581.40	1 569.10	1 555.57	1 555.57
			AT	18976.80	18976.80	18976.80	18829.20	18666.84	18666.84
Timolol, Travoprost 3ml	0.1	3	P	1 695.80	1 695.80	1 695.80	1 682.60	1 493.10	1 493.10
			IDDD	67.83	67.83	67.83	67.30	59.72	59.72
			MT	2034.96	2034.96	2034.96	2019.12	1791.72	1791.72
			AT	24419.52	24419.52	24419.52	24229.44	21500.64	21500.64
			P	-	1 175.00	1 175.00	1 165.80	1 155.57	1 155.57
Timolol, Brimonidine 5ml	0.2	6	IDDD	-	47.00	47.00	46.63	46.22	46.22
			MT	-	1 410.00	1 410.00	1 398.96	1 386.68	1 386.68
			AT	-	16920.00	16920.00	16787.52	16640.16	16640.16
			P	-	-	-	-	1 329.00	1 329.00
			IDDD	-	-	-	-	53.16	53.16
Brimonidine Brinzolamide 5ml	0.2	6	MT	-	-	-	-	1 594.80	1 594.80
			AT	-	-	-	-	19137.60	19137.60