Cost of Ocular Medications at Priest Hospital

Khemin Iemnoi BSc (Pharm)*

** Department of Pharmacy, Priest Hospital*

Objective: *To evaluate the cost of ocular medications, both in and out of the national drug lists (NDL)in the year 2004 used for priests and novices of Priest Hospital*

Material and Method: *The present study was retrospective and reviewed the prescriptions for out and in patients who received the treatment at Priest Hospital. 4,508 prescriptions were prescribed between October 2006 and March 2007 evaluated. Comparison of the cost of medications prescribed for each disease category was performed.*

Results: *The total of 331 types of drugs was prescribed. The total cost of medications use was 2,292,935 Baht. This included drugs in the NDL in the year 2004 which cost 813,238 (35.47%) Baht and 1,479,697 (64.53%) Baht of drugs not on the NDL. Item D was found to have maximum cost (40.11%), followed by Item A (29.23%), Item C (22.10%), and Item B (8.56%), respectively. Regarding all medications used at Priest Hospital, eye medications, cost most followed by cardiovascular and central nervous system medications. The eye medication that cost the most was for glaucoma (73.09%), followed by corticosteroid and other anti-inflammatory preparations (12.95%) and ocular lubricants and astringents (6.49%).*

Conclusion: *Ocular medications cost are the most expensive when compared to other medications both on and outside the NDL. Among the ocular medication prescribed, glaucoma medication was the most expensive.*

Keywords: *Cost of medications, Outpatient, In patient, Ophthalmological Department*

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The cost of prescription medications increased from $239 billion to $252 billion in 2004 and 2005. It is estimated that in 2007, the cost of medication in hospital would increase by 4-6%[1]. In USA, total cost per year for eye and vision disease in the population over 40 years old would be $35.4 billon of which $16.2 billon dollar would be from the cost of the drug[2].

At present, there were 67 million people with glaucoma: the incidence rate was 1% for those who were over 50 years old[4] and the cost for the treatment of glaucoma increasing in England, lreland, Scottland and Italy[3,4,7,10]. In Ireland and Scotland, it was found that the cost of drugs for glaucoma significantly increased when compared to others[4,8] especially for new drug in prostaglandin analogues groups[4,7,8,10].

Correspondence to: Iemnoi K, Priest Hospital, 445Sri Ayudhya street, Bangkok 10400, Thailand. Phone: 0-2354-4257, Fax: 0-2354-4310.

In the USA, in 2000 the cost of first four drugs for the treatment of glaucoma in one patient were latanoprost (Xalatan; Pharmacia and Upjohn), betaxolol hydrochloride(Betoptic-S, Alcon), dorzolamide hydrochloride (Trusopt, Merk) and brimonidine (Alphagan, Allergan Pharmaceuticcals) which accounted US $337, 336, 288 and US $260, respectively[12]. During 1998-2000, the average costs per patient of dorzolamide hydrochloride-timolol (Cosopt), Betoptic-S Xalatan and Trusopt were US $470, 370, 352 and US $288, respectively[9] and the increasing of the cost were due to the severity of the disease[5,6,11].

In 2002, in Thailand, the cost of medication for eye disease from the hospital under Ministry of Public Health for Antiglaucoma, Anti-infective, Corticosteroid and Anti-infective, Decongestant and Antiallergic, Corticosteroid, Artificial tears with preservative and Artificial tears (preservative-free) were 146, 93, 68, 56, 49, 43 and 23 million Bath, respectively[13].

In this study for cost of medication in Thailand was limited[14].Inadequate data would cause problem in the management of budgeting under government policy[15], especially when the Priest Hospital' vision departmentwas to become Center of Excellence/National Institute for glaucoma. Pre-review studies were only for drugs from the Essential National drug list in 1999[14,16] but from the present 2004.

Material and Method

Analysis of the cost of medications from the online report of the hospital was done. The data between October 1, 2006 and March 31, 2007 were included and classified according to the national drug list of the year 2004.

Results

Within 6 months, a total of 5,822 priests received treatment as outpatients and inpatients at Priest hospital. 4,508 prescriptions were issued. The hospital drug lists contained 331 medications with 188 (56.8%) items in the National Drug List and 143 (43.2%)

Table 1. Comparing the costs of each medication classified by the national drug list year 2004

No.	Number of drug group	Drug group	Cost		Drugs in the NDL	Drugs not in the NDL
			Baht	Percent	Percent	Percent
1	11	Eye	849,304.00	37.04	49.22	30.35
2	2	Cardiovascular system	296,557.00	12.93	15.06	11.76
3	4	Central nervous system	295,709.00	12.9	5.49	16.97
4	10	Musculoskeletal and joint diseases	256,523.00	11.19	1	16.79
5	6	Endocrine system	134,407.00	5.86	8.93	4.18
6	7	Urinary-tract disorders	110,696.00	4.83	3.2	5.72
7	3	Respiratory system	107,435.00	4.69	9.94	1.8
8	9	Nutrition and blood	87,652.00	3.82	1.34	5.19
9	1	Gastro-intestinal system	78,688.00	3.43	1.49	4.5
10	5	Infections	59,066.00	2.57	2.61	2.56
11	13	Skin	10,895.00	0.48	1.08	0.12
12	12	Ear, nose, and oropharynx	5,648.00	0.24	0.61	0.05
13	16	Antidotes	145	0.01	-	0.01
14	8	Malignancy and immuno-suppression	138	0.01	0.02	-
15	14	Immunological products and vaccines	72	-	0.01	-
Total			2,292,935.00	100	100	100

Table 2. The first ten medications cost the most in each group both in and not in the national drug list 2004

No.	Number of drug group	Drug group	Drugs in the national drug list%	Drugs not in the national drug list%	Total%
1	11	Eye	47.13	52.87	100
2	2	Cardiovascular system	41.3	58.7	100
3	4	Central nervous system	15.1	84.9	100
4	10	Musculoskeletal and joint diseases	3.16	96.84	100
5	6	Endocrine system	54.01	45.99	100
6	7	Urinary-tract disorders	23.53	76.47	100
7	3	Respiratory system	75.2	24.8	100
8	9	Nutrition and blood	12.45	87.55	100
9	1	Gastro-intestinal system	15.43	84.57	100
10	5	Infections	35.93	64.07	100

items not in the National Drug List.

The total cost of the medications prescribed was 2,292,935 Baht, and consisted of 813,238 (35.47%) of medications from the national list and 1,479,697 Bath (64.53%) of medications not from the national list.

When classifying the medications into 4 Categories according to the national drug list year 2004, category A had 119 items (63.3%) of medications, 28 (14.89%) items in Category B, 25 (13.3%) in Category C and 16 (8.51%) in Category D.

The category attributed to the most costs was category D which was 326,205 Baht (40.11%). Following by Category A, C and B with the cost of 237,669 Baht (29.23%), 179,752 Baht (22.1%), 69,612 Baht (8.56%) respectively.

When comparing the costs of each medication classified by the national drug list year 2004, the group that attributed to the most costs of treatment was ocular medications, cardiovascular medications and central nervous system medication: (849,304 Baht (37.04%); 296,557 Baht (12.93%); 295,709 Baht (12.9%)). These can be split into medications in the national drug list and not in the national drug list as shown in Table 1.

The first ten medications cost the most in each group both in and not in the national drug list were shown in Table 2.

Eye medications in the national drug list that had attributed to costs was glaucoma medications 292,578 Baht (73.09%), followed by corticosteroid and other anti-inflammatory preparations 51,835 Baht (12.95%) tear deficiency, ocular lubricants and astringents 25,985 Baht (6.49%), ocular diagnostic and peri-operative preparations 16,419 Baht (4.1%), Antiinfective eye preparations 9,718 Baht (2.43%), (Antibacterial and eye wash solution 6,852 Baht (1.71%), Antibacterial with corticosteroids 2,866 Baht (0.72%)) and Mydriatics and cycloplegics 3,754 Baht (0.94%).

Eye medication not within the national drug list that had the attributed to cost was glaucoma medications 315,366 Baht(70.24%), followed by tear deficiency ,ocular lubricants and astringents 82,875 Baht (18.46%), corticosteroid and other anti-inflammatory preparations 30,295 Baht (6.75%), Anti-infective eye preparations 15,477 Baht (3.45%) and Drugs for treatment of cataract 5,002 Baht (1.1%).

Discussion

In the present study, the hospital drug list consisted of 188 drugs which were in the national drug list and 143 drugs which were not in the list. However, the author found that the cost of medications used was more in the latter. This was owing to the unit cost of each drug item in the drugs that was not in the national list was more. When looking at each category of drugs, category A was prescribed more than other categories, followed by category B, C, D and E, accordingly. This reflected the proper use of medications by the physicians concerning the national drug list year 2004 policy. However, category E drug was not included in the hospital list.

Category D's drug costs attributed to the maximal cost among other categories. Category A, C, B, and E cost less from maximum to minimum costs. The reason behind this was that category D and C drug items are more expensive than others. Category A was prescribed most often and contained drug items average 5.2 times more than other categories, so that they attributed to the second most of the total cost. category B attributed to less cost of drugs used since most of the drugs can be replicable by Category A.

Drugs in the National drug list that were most prescribed and cost the most were ocular medications because the author included the data from outpatients of Ophthalmological Department.

The first three medications in the national drug list that cost the most compared to the various groups were: respiratory medication group, the endocrine medications group and the ocular medications group, respectively. The first three medications not in the national drug list that cost the most comparing between the groups were musculoskeletal and joint medication group, nutrition and hematology medications and CNS medications group, respectively. Overall costs considered, the author found that there were more prescriptions issued for drugs outside the national drug list drugs more than drugs in the list.

Conclusion

The cost of the medications used is increasing in every country. For Priest Hospital, Ophthalmology Department was set up to be the excellent center due to the high rate of OPD cases, admission and eye surgery including laser photocoagulation. Glaucoma is a chronic disease for which lifelong treatment is required so they cost the most in terms of medication costs. This is true for both the drugs in and out of the NDL. This data can be used to allocate the hospital budget to support the management plan of the hospital as "Excellent center of Ophthalmology" and can be used to speculate the cost of drugs in the next calendar year.

References

1. Hoffman JM, Shah ND, Vermeulen LC, Schumock GT, Grim P, Hunkler RJ, et al. Projecting future drug expenditures—2007. Am J Health Syst Pharm 2007; 64: 298-314.
2. Rein DB, Zhang P, Wirth KE, Lee PP, Hoerger TJ, McCall N, et al. The economic burden of major adult visual disorders in the United States. Arch Ophthalmol 2006; 124: 1754-60.
3. Rouland JF, Berdeaux G, Lafuma A. The economic burden of glaucoma and ocular hypertension: implications for patient management: a review. Drugs Aging 2005; 22: 315-21.
4. Knox FA, Barry M, McGowan B, O'Brien C. The rising cost of glaucoma drugs in Ireland 1996-2003. Br J Ophthalmol 2006; 90: 162-5.
5. Lee PP, Walt JG, Doyle JJ, Kotak SV, Evans SJ, Budenz DL, et al. A multicenter, retrospective pilot study of resource use and costs associated with severity of disease in glaucoma. Arch Ophthalmol 2006; 124: 12-9.
6. Traverso CE, Walt JG, Kelly SP, Hommer AH, Bron AM, Denis P, et al. Direct costs of glaucoma and severity of the disease: a multinational long term study of resource utilisation in Europe. Br J Ophthalmol 2005; 89: 1245-9.
7. Bateman DN, Clark R, Azuara-Blanco A, Bain M, Forrest J. The effects of new topical treatments on management of glaucoma in Scotland: an examination of ophthalmological health care. Br J Ophthalmol 2002; 86: 551-4.
8. Macleod SM, Clark R, Forrest J, Bain M, Bateman N, Azuara-Blanco A. A review of glaucoma treatment in Scotland 1994-2004. Eye 2008; 22: 251-5.
9. Vold SD, Riggs WL, Jackimiec J. Cost analysis of glaucoma medications: a 3-year review. J Glaucoma 2002; 11: 354-8.
10. De Natale R, Draghi E, Dorigo MT. How prostaglandins have changed the medical approach to glaucoma and its costs: an observational study of 2228 patients treated with glaucoma medications. Acta Ophthalmol Scand 2004; 82: 393-6.
11. Schmier JK, Halpern MT, Jones ML. The economic implications of glaucoma: a literature review. Pharmacoeconomics 2007; 25: 287-308.
12. Vold SD, Wiggins DA, Jackimiec J. Cost analysis of glaucoma medications. J Glaucoma 2000; 9: 150-3.
13. Jenchitr W. Cost of eyes medications in hospitals of Ministry of Public Health 2002. Thai J Pub Health Ophthalmol 2003; 17: 167-70.
14. Ketcharoen A, Pinnoy A, Ritteeveerakul P. Trends in Drug Expenditures in a University Hospital. Thai J Hosp Pharm 2007; 17(Suppl): S77-88.
15. Committee of the National Lists of Essential Drug Policy. Major process of essential drug policy. National Lists of Essential Drug Policy. 2004: c-e.
16. Srisuphan V, Limwattananon C, Limwattananon S, Luangruangrong P, Tangcharoensathien V. Trend in hospital drug utilization after an implementation of the National Lists of Essential Drug Policy. J Health Sci 2004; 13: 37-46.

มูลค่าการใช้ยาในผู้ป่วยนอก และผู้ป่วยในจักษุของ โรงพยาบาลสงฆ์

เขมินท์ เอี่ยมน้อย

วัตถุประสงค์: *เพื่อศึกษาสถานการณ์มูลค่าการใช้ยาทางจักษุวิทยาในบัญชียาหลัก และนอกบัญชียาหลักแห่งชาติ พ.ศ. 2547*

วัสดุและวิธีการ: *การวิจัยนี้เป็นงานวิจัยเชิงพรรณนาแบบย้อนหลัง จากใบสั่งยาพระสงฆ์และสามเณรที่มารับบริการในแผนกผู้ป่วยนอก และผู้ป่วยในจักษุของโรงพยาบาลสงฆ์ จำนวนใบสั่งยา 4,508 ใบ ศึกษาเปรียบเทียบมูลค่าการใช้ยาตามกลุ่มต่างๆทั้งในบัญชียาหลัก และนอกบัญชียาหลักแห่งชาติ พ.ศ.2547 ในช่วงระยะเวลาตั้งแต่ 1 ตุลาคม พ.ศ. 2549 - 31 มีนาคม พ.ศ. 2550*

ผลการศึกษา: *จากการศึกษาเปรียบเทียบจำนวนรายการยาในและนอกบัญชียาหลักแห่งชาติ พ.ศ. 2547 มีรายการยาทั้งสิ้น 331 รายการ คิดเป็นมูลค่ายาทั้งหมด 2,292,935 บาท โดยมีมูลค่ายาในบัญชียาหลัก 813,238 บาท และยานอกบัญชียาหลัก 1,479,697 บาท คิดเป็นร้อยละ 35.47 และ 64.53 ตามลำดับ โดยยาในบัญชียา ง มีมูลค่ามากที่สุด ลำดับรองลงมาคือบัญชียา ก บัญชียา ค และ บัญชียา ข ตามลำดับ คิดเป็นร้อยละ 40.11, 29.23, 22.10 และ 8.56 ตามลำดับ ในโรงพยาบาลสงฆ์ยาที่มีมูลค่าการใช้มากที่สุด 3 อันดับแรกคือยากลุ่มทางจักษุวิทยา ลำดับรองลงมาคือ ยาโรคระบบหัวใจและหลอดเลือด และยาระบบประสาทและสมอง ตามลำดับ โดยยาในกลุ่มจักษุวิทยา 3 อันดับแรก พบว่ายาที่ใช้รักษาต้อหิน มีมูลค่ามากที่สุด ลำดับรองลงมาคือ ยาลดการอักเสบกลุ่มสเตียรอยด์และไม่ใช่สเตียรอยด์ และยากลุ่มน้ำตาเทียมและหล่อลื่นในตารวมทั้งยาลดอาการระคายเคือง คิดเป็นร้อยละ73.09, 12.95 และ6.49 ตามลำดับ*

สรุป: *กลุ่มยาทางจักษุวิทยามีมูลค่าการใช้มากที่สุดทั้งยาในบัญชีและนอกบัญชียาหลักแห่งชาติ โดยกลุ่มยามีมูลค่าการใช้มากที่สุดทั้งยาในและนอกบัญชียาหลักคือ ยาที่ใช้รักษาต้อหิน*