PHYSICIANS' KNOWLEDGE OF COST OF DRUGS

Mushtaq Ahmad Marwat

ABSTRACT

Objective: *To assess physicians' knowledge of cost of commonly used medications.*

Methodology: *A cross-sectional study done in May 2012 on twenty six (26) physicians (11 Consultants working in Medical units of the three tertiary care hospitals of Peshawar and 15 General Practitioners working in Peshawar city and Cantonment area). They were asked about the cost of 10 commonly prescribed drugs. Estimates within 25% of the actual costs were considered accurate.*

Results: *Out of 260 responses, 105 (40.4%) responses of the physicians came up with accurate estimates. No significant difference was found between the responses of GPs and the Consultants [64/150 vs. 41/110 ($p > 0.05$)]. Overall, costs of expensive drugs were more accurately estimated than the inexpensive ones [48/104 vs. 57/156 ($p < 0.05$)]. Physicians consistently overestimated the costs of inexpensive drugs and underestimated the costs of expensive ones ($p < 0.05$).*

Conclusion: *Physicians have inadequate knowledge of cost of drugs which may lead to poor medication compliance.*

Key Words: *Physicians, Drug costs, Medication compliance, Pakistan.*

This article may be cited as: Marwat MA. Physicians' knowledge of cost of drugs. J Postgrad Med Inst 2013; 27(2): 148-51.

INTRODUCTION

Pakistan is a poor country with 31% of the population falling below the poverty line[1] and basic necessities of life, like medicine, are becoming distant from them. Cost of medicines on the other hand, has risen dramatically during the past decade. Higher drug costs may have negative impact on patient outcomes especially for those with limited financial resources. This may result in the prescriptions remaining unfilled or being filled partially thus leading to poor compliance and compromised patients' health. Inadequate physicians' knowledge of drug costs may unwittingly contribute to the problem[2].

Numerous studies from various centres across the world have shown insufficient physicians' knowledge of medication costs but the data are variable and there is no consistent pattern of awareness in this regard[3-5]. We conducted this study to evaluate the knowledge of drug costs of physicians working in the three tertiary care hospitals of Peshawar, Pakistan. General Practitioners (GPs) working in Peshawar city and the Cantonment area were also surveyed.

Department of Pharmacology & Therapeutics, Khyber Medical College, Peshawar - Pakistan

Address for Correspondence:
Dr. Mushtaq Ahmad Marwat,
Associate Professor,
Department of Pharmacology & Therapeutics,
Khyber Medical College, Peshawar - Pakistan
E-mail: drmushtaq86@gmail.com

Date Received: July 16, 2012
Date Revised: January 13, 2013
Date Accepted: January 31, 2013

METHODOLOGY

This was a cross-sectional study done in May, 2012. Fifty seven (57) physicians (30 Consultants and 27 GPs) were surveyed with a proforma asking them about the costs of 10 commonly prescribed drugs. Physicians were asked to fill the proforma instantly (to avoid the possibility of the physicians seeking help from any drug cost source). Physicians were asked not to show their identity except writing their status on the proforma, i.e. either the 'Consultant' or the 'GP' (by 'Consultant' we meant Senior Registrar, Assistant Professor, Associate Professor or Professor working in Medical units of the tertiary care hospitals, dealing with adult medicine; 'GP' referred to General Practitioner). Only those GPs were included in the study who were practicing for more than 5 years.

The instrument used for the study was a proforma which included ten (10) most commonly used drugs. These 10 drugs were selected from a longer list of 50 most frequently prescribed drugs (known earlier through a survey done in the Medical OPD of Khyber Teaching Hospital,

Peshawar). The selected drugs belonged to several therapeutic classes including antihypertensives, anti-ulcer medications, anxiolytics and antimicrobials. Both expensive drugs (co-amoxiclav, ciprofloxacin, clarithromycin and amlodipine) and inexpensive drugs (propranolol, atenolol, omeprazole, famotidine, verapamil and alprazolam) were included in the list ('expensive' drugs were arbitrarily defined as those having costs of at least Rs. 20/- per tablet/capsule; the branded preparations of the expensive drugs included in the study had prices between Rs. 20/- to Rs. 64/- per tablet/capsule). Strengths of the preparations were mentioned in the proforma.

Physicians were asked to write the cost of the brand they were used to. Cost estimations within 25% of the actual costs (i.e. estimates between 75% and 125% of the true costs) were considered accurate. Estimates below 75% were taken as 'underestimation' while those above 125% were considered 'overestimation' (after literature review, the level of 25% was selected to make our study compatible with those already done[4,5]). Physicians were told that filling the proforma will mean their consent to participate in the study.

Data collected were analyzed statistically using SPSS (Statistical Package for Social Sciences) version 20. Value of *p* less than 0.05 was considered significant.

RESULTS

As one of the inclusion criteria for the study was that the proformas be filled instantly (to avoid any chance of the physicians comparing their estimated costs with the market prices), we were able to get only 26 (out of 57) proformas, from 11 Consultants and 15 GPs (response rate: 45.6%).

Every physician was asked about the cost of 10 drugs. We obtained 232 responses out of the total 260 (26x10) responses. Twenty eight (28) responses (10.8%) were missed perhaps because the physicians were not accustomed to prescribe these drugs or they had no idea about their costs. Missed responses were mainly for the drugs verapamil, famotidine and omeprazole with frequencies of 7, 6 and 5, respectively. There was no missed response for the drug co-amoxiclav.

Out of 260 responses, 105 (40.4%) responses of the physicians came up within 25% of the actual cost of drugs and were considered accurate. Twenty five percent (65/260) of the responses were underestimations while 23.8% (62/260) were overestimations of the cost of drugs. A total of 64/150 (42.7%) responses of the GPs vs. 41/110 (37.3%) of the Consultants were considered accurate (Pearson Chi-square $p>0.05$). Costs of expensive drugs were more accurately estimated than the inexpensive ones [48/104{46.2%} vs. 57/156 {36.5%} ($p < 0.05$)]. Expensive drugs were consistently underestimated by both the Consultants and the GPs (29.8% underestimation versus 19.2 % overestimation; $p<0.05$). Inexpensive drugs were consistently overestimated by both the Consultants and the GPs (26.9% overestimation vs. 21.8% underestimation; $p<0.05$) as apparent from their responses. More responses from the GPs (64%) were in favour of generic preparations than the branded ones (vs. 38.18% from Consultants; $p<0.05$); [Tables 1 & 2].

Table 1: Consultants and GPs Estimation status

	Estimation status of responses				Total
	Missed	Considered accurate	Over-estimation	Under-estimation	
GPs	14(9.3%)	64(42.7%)	37(24.7%)	35(23.3%)	150(100%)
Consultants	14(12.7%)	41(37.3%)	25(22.7%)	30(27.3%)	110(100%)
Total	28(10.8%)	105(40.4%)	62(23.8%)	65(25.0%)	260(100%)

Table 2: Expensive and Inexpensive Estimation status

	Estimation status of responses				Total
	Missed	Considered accurate	Over-estimation	Under-estimation	
Expensive	5(4.8%)	48(46.2%)	20(19.2%)	31(29.8%)	104(100%)
Inexpensive	23(14.7%)	57(36.5%)	42(26.9%)	34(21.8%)	156(100%)
Total	28(10.8%)	105(40.4%)	62(23.8%)	65(25.0%)	260(100%)

DISCUSSION

Physicians are generally of the opinion that cost of drugs should be born in mind while prescribing[6-9] but unfortunately, their knowledge of drug costs is quite poor which may result in prescriptions being unfilled, partially filled or used less frequently than directed, leading to suboptimal control of the disease state[2].

As evident from the physicians' responses given during this study, 40.4% of the estimates were within 25% of the actual drug costs and were considered accurate. Many of the estimates appeared to be wild guesses. These results support the findings of the studies done by researchers where the physicians coming up with accurate estimates were between 28% and 45%[2,4,5,10-12]. But results as low as <20% or even 12% of the physicians with accurate estimates were also found[3,13]. One reason for this poor knowledge of cost of medications is probably lack of exposure to information regarding drug costs during Medical School (where this topic perhaps finds no place in the curriculum) or improper provision of such information during house job and residency training or once they are in practice.

It is usually presumed that GPs have more accurate knowledge about the cost of drugs probably due to their more frequent interactions with the pharmaceutical representatives[14]. Results of our study favoured that general belief showing that GPs were a bit ahead of the Consultants in making good estimates of the drug costs (42.7% vs. 37.3%), though, the difference was non-significant (Chi-square $p>0.05$).

We were not astonished to find that GPs were significantly more inclined to write the generic preparations than the branded products when compared with the Consultants (64% responses among the GPs vs. 38.18% of the responses among the Consultants in favour of generic products; $p<0.05$). This finding supports the results of the studies done by Alghasham[15] and Pham et al[8] who explored that primary care physicians were significantly more likely to switch to generic products than the hospital physicians. This trend, probably, is due to the fact that GPs are the primary health care providers with more continuous health care relationship with the patients and have more awareness of the socioeconomic conditions of the patients than the Consultants.

Some common 'universal' trends were found among the physicians included in this study and those working abroad. For example, it was revealed that physicians of the study group estimated the costs of expensive drugs more accurately than the inexpensive ones (46.2% versus 36.5%, respectively; $p<0.05$) in similarity to the physicians working internationally. In the same manner, both the Consultants and the GPs consistently overestimated the cost of inexpensive products (26.9% overestimation versus 21.8% underestimation; $p<0.05$) while underestimated the costs of the expensive drugs (29.8% under-estimation versus 19.2% overestimation; $p<0.05$). These findings are in accordance with the results of the studies done by Allan et al[4], Reichert et al[2], Ryan et al[5], Allan and Innes[16], and Allan and Innes[17].

LIMITATION

This is a pilot study which will lead to the larger survey on this subject. The response rate was very low overall, which needs to be addressed. A much larger sample is needed to be used in the future studies.

CONCLUSION

Physicians are never expected to know the exact cost of drugs. However, it would be helpful for the patients if the doctors had some idea about the cost of drugs which they usually prescribe. But they were found to have inadequate knowledge of the cost of medications. They need proper drug cost information which will modify their prescribing, thus leading to better medication compliance and ultimately improved health outcomes.

ACKNOWLEDGMENTS

The author would like to thank Farhan Ullah, Aiman Saeed and Zia-ur-Rehman, 4th Year Medical students who helped me in collecting the data. I am also grateful to Dr. Hamid Hussain (Community Medicine Department, Khyber Medical College, Peshawar) and Mr. Iftikhar-ud-Din (Stats/Maths Department, Agricultural University, Peshawar) for their help in analyzing the data.

REFERENCES

1. Naveed A, Islam T. A new methodological framework for measuring poverty in Pakistan [Online]. 2010 [cited on May 10, 2012]. Available from URL: http://www.sdpi.org/publications/publication_details-341-7.html
2. Reichert S, Simon T, Halm EA. Physicians' attitudes about prescribing and knowledge of the costs of common medications. Arch Intern Med 2000;160:2799-803.
3. McGuire C, King S, Roche-Nagle G, Barry MC. Doctors' attitudes about prescribing and knowledge of the cost of common medications.

Ir J Med Sci 2009;178:277-80.

4. Allan GM, Lexchin J, Wiebe N. Physician awareness of drug cost: a systematic review. PLoS Med 2007;4:283.
5. Ryan M, Yule B, Bond C, Taylor RJ. Scottish general practitioners' attitudes and knowledge in respect of prescribing costs. BMJ 1990;300: 1316-8.
6. Ryan M, Yule B, Bond C, Taylor RJ. Do physicians' perceptions of drug costs influence their prescribing? Pharmacoeconomics 1996; 9:321-31.
7. Schrag D, Hanger M. Medical oncologists' views on communicating with patients about chemotherapy costs: a pilot survey. J Clin Oncol 2007;25:233-7.
8. Pham HH, Alexander GC, O'Malley AS. Physician consideration of patients' out-of-pocket costs in making common clinical decisions. Arch Int Med 2007;167:663-8.
9. Khan S, Sylvester R, Scott D, Pitts B. Physicians' opinions about responsibility for patient out-of-pocket costs and formulary prescribing in two Midwestern states. J Manage Care Pharm 2008;14:780-9.
10. Schilling UM. Cost awareness among Swedish physicians working at the emergency department. Eur J Emerg Med 2009;16:131-4.
11. Allan GM, Lexchin J. Physician awareness of diagnostic and non-drug therapeutic costs: a systematic review. Int J Tech Assess Health Care 2008;24:158-65.
12. Polinski JM, Maclure M, Marshall B, Cassels A, Agnew-Blais J, Patrick AR, et al. Does knowledge of medication prices predict physicians' support for cost effective prescribing policies? Can J Clin Pharmacol 2008;15:286-94.
13. Tseng CW, Brook RH, Alexander GC, Hixon AL, Keeler EB, Mangione CM, et al. Health information technology and physicians' knowledge of drug costs. Am J Manag Care 2010;16:105-10.
14. Watkins C, Harvey I, Carthy P, Moore L, Robinson E, Brawn R. Attitudes and behavior of general practitioners and their prescribing costs: a national cross sectional survey. Qual Saf Health Care 2003;12:29-34.
15. Alghasham AA. Generic drug prescribing in central Saudi Arabia: perception and attitudes of physicians. Ann Saudi Med 2009;29:24-9.
16. Allan GM, Innes GD. Family practice residents' awareness of medical care costs in British Columbia. Fam Med 2002;34:104-9.
17. Allan GM, Innes GD. Do family physicians know the costs of medical care? Survey in British Columbia. Can Fam Physicians 2004;50:263-70.