A SURVEY OF PAEDIATRIC PRESCRIBING AND DISPENSING IN KARACHI

Pages with reference to book, From 126 To 130

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ABSTRACT

In an effort to understand the paediatric prescribing practices of family physicians and dispensing of medicines from pharmacies, a survey was conducted in Karachi. Another objective was to understand the factors influencing such practices. Hundred family physicians and 55 pharmacists were surveyed. Four groups of drugs namely antidiarrhoeals, appetite stimulants, multivitamins and brain tonics were identified for assessment, these being drugs widely promoted by the pharmaceutical industry. Some of these drugs are known to have deleterious effects and therapeutic benefit of most of them is dubious. It was observed that roughly 55% of all drugs prescribed by the physicians fell into the aforementioned drug categories. These drugs also constituted nearly 60% of all sales of the pharmacies surveyed. The survey indicates that the antidiarrhoeal drugs Imodium (loperamide) and Lomotil (diphenoxylate) are being commonly prescribed though they have hazardous side effects and are unsuitable for use in children. Thirteen percent of physicians are still prescribing the anabolic steroid Durabolin (nandrolone phenylpropionate) as an appetite stimulant long after promotion for this purpose has been dropped. The survey 'indicates that 95% of the physicians relied upon industry promotional material as their main source of information about drugs. The survey highlights the need to introduce the concept of rational drug use in the undergraduate and postgraduate education (JPAM 40:126, 1990).

INTRODUCTION

The subject of rational drug use has been of considerable interest in recent years to the World Health Organisation and health care planners. Of the numerous factors influencing the availability and utilisation of drugs, the structure and operation of the drug industry, drug regulatory policies and physician prescribing practices are of major importance. The developed world has had longstanding statutory drug regulatory bodies entrusted not only with the task of screening and licensing drugs but also with the authority of overseeing the implementation of drug policies. A watchdog system such as this exists only on paper in most developing countries. It is with this background of feeble drug regulations in most of the third world that physician prescribing habits assume considerable importance. There is substantial western data that physician prescribing habits are frequently irrational[1] and some corrective measures have been taken in recent years through educational outreach programmes[2]. The situation is presumably worse for most of the developing world but there is a dearth of hard data from surveys of prescribing habits or drug utiisation studies. A recent WHO survey laments the fact that irrational drug use and consumption patterns in the developing world are placing an inordinately excessive burden on scanty health resources[3]. Nowhere is the çoncérn for proper prescribing as acute as in the paediatric age group for reasons of pharmacokinetic differences and potential toxicity. Of a total population of 110 million in Pakistan, nearly 52.4 million are less than 16 years of age[4]. Of these nearly 41% are less than 5 years of age. The bulk of the health care for most of our population including children is provided by family physicians, the backbone of our threadbare health care system, who prescribe and also frequently dispense medication. The other major factor in evaluating drug dispensing in Pakistan are the pharmacies, many of whom allow over-the counter

(OTC) sale of most drugs. Although regulations require that a qualified pharmacist be employed in each pharmacy, in practice this is frequently flaunted. This is particularly true where medical and general supplies are sold under the same roof. In an effort to understand the paediatric prescribing practices of family physicians and the dispensing of medicines from pharmacies, we undertook a survey in Karachi. An additional objective was to understand the factors influencing such prescribing practices.

METHODOLOGY

Four target groups of thugs were identified for assessment.
1. Antidiarrhoeals
2. Appetite-stimulants
3. Multivitamins
4. Brain tonics

These drugs were selected as they are widely promoted by the pharmaceutical industry, mainly for the paediatric age group and are largely imported in the raw or prepared form. The survey was conducted in three of the five districts of Karachi (District North, West and Central). The areas selected were those with a wide mixture of lower and middle socioeconomic groups. In all areas family physicians with a substantial paediatric practice (40% or more) were identified by a preliminary survey. Corresponding pharmacies catering to these physician practices were also identified for survey. The survey was conducted over an 8 week period (May-June 1988) by a team of two doctors and a pharmacist by means of an interview using a predesigned questionnaire. Most questions were of the closed variety requiring single choice answers. Commonly prescribed drug brands in different categories were rank ordered by the family practitioners and pharmacists from a comprehensive preselected list. We did not attempt to do a prescription analysis and the physicians and pharmacists were assured of the utmost confidentiality of their identity in the survey.

RESULTS

A total of 100 family physicians and 55 pharmacists agreed to participate in the survey. Most of the family physicians had busy practices, seeing an average of 60 patients per day, of whom children constituted 48% on an average.

TABLE I. Commonly prescribed drug categories, number of physicians interviewed (N=100).

Category	100%	75%	50%	25%	10%	<10%	0%
1. Vitamins	4	22	26	28	8	12	0
2. Brain Tonics*	0	1	3	4	17	46	20
3. Appetite Stimulants	0	3	13	28	22	25	9
4. Anti-Diarrhoeals	7	19	40	21	7	6	0

*9 Physicians did not respond to this question.

Table 1 shows the physician responses to questions on commonly prescribed drug categories whereas the corresponding sales categories of drugs are given in Table II.

TABLE II. Commonly sold drug categories by pharmacists, number of pharmacists interviewed (N=55).

Category	100%	75%	50%	25%	10%	<10%	0%
1. Vitamins	0	5	14	25	7	1	0
2. Brain Tonics	0	0	0	4	13	35	0
3. Appetite Stimulants	0	0	1	8	32	11	0
4. Anti-Diarrhoeals	0	2	9	30	10	1	0

3 Pharmacists did not respond to this question.

It can be estimated that roughly 55% of all drugs prescribed by the physicians fell into the category of vitamins, appetite-stimulants and brain- tonics whereas 45% of all children with diarrhoea were prescribed antidiarrhoeals. These drugs also constituted nearly 60% of all sales of the pharmacies surveyed. Overall nearly 40% of all sales of these drugs were over-the-counter.

TABLE III. Number of Physicians that commonly prescribed specific appetite stimulants.

Commonly prescribed drugs	No. and (%) of Physicians
Mosegor (Sandoz) (pizotifen)	79 (87)
Tres-Orix (Prodes/Highnoon) (cyproheptadine)	41 (45)
Periactin (MSD) (cyproheptadine)	40 (44)
Durabolin (Organon) (nandrolone phenylpropionate)	13 (14)
Longifene (UCB/PDH) (buclizine)	12 (13)
Common reasons for prescribing appetite stimulants	
Loss of Appetite	67 (74)
On Mother's Request/On Demand	17 (19)
Loss of Weight	15 (16)
Convalescence	4 (4)
Chronic Illness	4 (4)
Malnutrition	3 (3)
Brain Weakness	5 (5)
Other reasons	1 (1)
With Antibiotics, Malaria, Fever, Post infection, hyperacidity	

TABLE IV. Number of Physicians that commonly prescribed specific vitamin brands.

Commonly prescribed drugs	No. and (%) of Physicians
Vi – Daylin (Abbott) (vit A, B1, B2, B6, B12, C, D, nicotinamide)	69 (69)
Incremin (Lederle) (vit B1, B6, B12, lysine, iron)	59 (59)
Lysovit (Pfizer) (vit B1, B2, B6, B12, C, niacinamide, calcium pantothenate, inositol, lysine)	54 (54)
Lederplex (Lederle) (vit B1, B2, B6, B12, niacinamide, pantothenate, inositol, choline)	47 (47)
Cecon (Abbott) (vit C)	46 (46)
Surbex (Abbott) (vit B1, B2, B6, B12, C, nicotinamide, panthenol)	43 (43)
Minolad (Fisoris) (vit A, D, lysine, iron, calcium & sodium glycerophosphate, magnesium, choline, methionine, copper)	23 (23)
Polybion (Merck) (vit B1, B2, B6, B12, nicotinamide, pantothenol)	21 (21)
Ascorbon (Dumex/Pfizer) (vit C)	20 (20)
Abdec (Parke Davis) (vit A, B1, B2, B6, C, D, nicotinamide, pantothenate)	18 (18)
Ferradol (Parke Davis) (vit A, B1, B2, D, iron, niacinamide)	16 (16)
Viterra (Pfizer) (vit A, B1, B2, B6, B12, C, D, nicotinamide, iron, calcium, phosphorus, manganese, magnesium, zinc, panthenol)	14 (14)
Vi-Magna (Lederle) (vit A, B1, B2, B6, B12, C, D, niacinamide, pantothenate)	14 (14)
Wellcosine (Wellcome) (vit B1, B2, B6, B12, C, nicotinamide, inositol, panthenol, lysine)	9 (9)
Common Reasons for prescribing vitamins	
Weakness/Underweight/As a tonic	54 (54)
Deficiency States/Malnutrition	49 (49)
Supplement to antibiotics	20 (20)
On demand	16 (16)
In disease states other than deficiencies	11 (11)
Anemia	7 (7)
In convalescence	4 (4)
Loss of appetite	3 (3)
Dehydrated child	2 (2)
To all patients	1 (1)

TABLE V. Number of Physicians that commonly prescribed specific brain tonic brands.

Commonly prescribed drugs	No. and (%) of Physicians
Encephabol (Merck) (Pyritinol)	62 (87)
Hydergine (Sandoz) (codergocrine mesylate)	40 (56)
Nootropil (UCB/PDH) (piracetam)	11 (15)
Piracetam (Prodes/Highnoon)	3 (4)
Common reasons for prescribing brain tonics	
mental retardation	38 (54)
On demand	12 (17)
Loss of memory	9 (13)
Delayed Milestones	6 (8)
Congenital brain abnormalities/injuries	4 (6)
Mental Weakness	4 (6)
Cerebral Palsy	3 (4)
As a tonic	2 (3)
Brain diseases	2 (3)
Epilepsy/Fits	2 (3)
Other reasons Prematurity, CVA, General Debility, Loss of Appetite	2 (3)

Tables III, IV and V show the commonly prescribed brands of appetite stimulants, vitamins and brain-tonics along with the estimated daily cost of therapy and the various reasons cited for prescription.

TABLE VI. Number of Physicians that commonly prescribed specific antidiarrhoeal brands.

Commonly prescribed drugs	No. and (%) of Physicians
Imodium (Jansen) (Loperamide)	61 (61)
Streptomagma (Wyeth) (kaolin, pectin, aluminium hydroxide)	55 (55)
Kaltin (Abbott) (kaolin, pectin)	51 (51)
Kaopectate (Upjohn) (kaolin, pectin)	50 (50)
Furoxone (SK&F) (furazolidone)	45 (45)
Lomotil (Searle) (diphenoxylate, atropine sulfate)	41 (41)
Dependal-M (SK&F) (furazolidone metronidazole, attapulgite)	28 (28)
Kaoplex (Woodwards) (kaolin, pectin)	26 (26)
Neo-Intestopan (Sandoz) (attapulgite)	15 (15)
Lomofen (Searle) (diphenoxylate, atropine sulfate, furazolidone)	15 (15)
Entox-P (Wyeth) (attapulgite)	11 (11)
Kaostop (Schazoo) (kaolin, pectin)	7 (7)
Loperam (P.P.P) (loperamide)	3 (3)
Rheatrol (Abbott) (difenoxin, atropine sulfate)	3 (3)

Table VI lists the commonly prescribed antidiarrhoeals in rank order along with the daily cost of therapy. On questioning, only 63% of physicians confessed to knowledge of the exact cost of drugs prescribed and 28% categorically stated that the patient's economic condition was not taken into account when prescribing.

TABLE VII. Sources of drug information cited by the physicians.

Sources of information	No. and (%) of Physicians
Medical representatives/Promotional materials	95 (95)
Advertisements in Medical Newspapers/ Information in Prescribing Guides	49 (49)
Medical Conferences sponsored by companies	42 (42)
Pharmacists	6 (6)
Discussion with colleagues	2 (2)
Own experience	2 (2)
Continuing Medical Education (CME)	0 (0)

Table VII lists the various sources of information cited by the family physicians in their knowledge of different drugs prescribed. In Tables III, IV, V, VI and VII percentages total more than 100 since physicians gave more than one response. Table VII lists the factors influencing drug selection by pharmacists. Percentages total more than 100 in Table VII since pharmacists gave more than one response.

DISCUSSION

Our study was designed to look at a cross section of busy family physicians in an effort to assess their perceptions and prescribing practices especially in relation to the aforementioned four drug categories. Information was also obtained from corresponding pharmacies in an effort to cross check prescribing practices. In most cases there was close correlation between the two. We chose to select these categories of drugs for multiple reasons. Some are known to have deleterious effects and the therapeuticbenefit of most of them is at best dubious. There are currently 9500 registered drugs in Pakistan of which 6500 are formulated locally while 3000 are imported. The raw material for the production of many of these pharmaceuticals is mainly imported at a heavy cost to the national exchequer. The local pharmaceutical market is estimated to be in the region of Rs. 7 billion annually. It is disconcerting to note the high rate of prescription and dispensing of multivitamins and appetite stimulants, since these drugs have a very limited role in the nutritional rehabilitation of children, the commonest cause for which in Pakistan is protein energy malnutrition. A poor family expending a large proportion of its drug bills on expensive multivitamin preparationsis better advised to divert its resources to basic needs. The so-called 'braintonics' also fall into the same category. On the basis of our data it is clear that a substantial number of these drugs prescribed and dispensed are non-essential, ineffective and of little or no therapeutic value. Some of these drugs may be actually hazardous with significant toxic side effects. Encephabol (Pyritinol) is associated with significant side effects in 25% of patients[5]. Our survey indicates that 41% of physicians are still prescribing Lomotil (Diphenoxylate) to children, a drug fraught with hazards of overdosage[6] and potentially fatal in infants[7]. Thirteen (14%) doctors prescribed Durabolin (Nandrolone pbenylpropionate), an anabolic steroid, as an appetite stimulant long after promotion for this purpose has been dropped. Anabolic steroids are associated with

a significant risk of androgenic side effects, virilization, premature fusion of epiphyses[8] and have been implicated in a number of law suits involving unethical promotion and marketing in the developing world[9]. Of equal concern was the wide variety of responses obtained as to the indications for various drugs roughly 16-18% of different drugs being prescribed on parental demand. It was apparent that cost-effectiveness played little or no role in drug selection as the main choices in nearly all drug categories were also the most expensive. Sixty one physicians chose Imodium (Loperamide), which is expensive and unsuitable for children. Imodium toxicity has recently been associated with a number of deaths (Bhutta T.I. Personal Communication). The economic and ethical implications of this issue are compounded by the observation that physician prescribing practices significantly influence the way pharmacists dispense drugs. In our survey 82% of pharmacists cited physician prescribing practices as the main reason for stock selection. It is thus easy to imagine the deleterious effect of irrational prescribing by physicians as it snowballs into subsequent potentially dangerous over-the-counter sales in pharmacies. What are the reasons for these prescribing practices? A close look at the way drug-related information is conveyed to our physicians provides clear answers. Our medical school and pharmacology curricula provide only limited information on prescribing to the young doctor who is then left to fend for himself in the "real world" with non-generic formulations and only the omnipresent pharmaceutical representative to guide him. It is hardly surprising therefore that 95% of the physicians in our survey relied upon medical representatives and promotional material as the main source of information. Very few utilized standard prescribing guides and medical conferences and there was insignificant access to any other academic source. The heavy reliance on the pharmaceutical industry's promotional material as a source of information is a major cause for concern. Most of the promotional material provides limited, incomplete and occasionally misleading information. Our survey highlights the urgent need for concerted measures in an effort to improve paediatric prescribing and dispensing of drugs. While the problem is clearly multifactor and there is no easy solution, yet there is considerable scope for improvement. First and foremost, we in the medical profession need to accept that there is a real problem. Such problems are not unique to Pakistan but are a consequence of multinational marketing and promotional strategies[10] together with inadequate attention to the training of prescribers both in undergraduate and postgraduate education. With such a large proportion of our population falling in the paediatric age group, there is an urgent need to devote a greater share of undergraduate medical curricula to the teaching of clinical and primary care paediatrics. While it is important to impart knowledge of pathophysiology, clear and concise management guidelines and therapy must be taught. The concept of essential drug use especially in the context of the developing world, is now well established[11] and should be included in any national drugs programme[12]. Such concepts of essential drug use and rational drug prescribing should be introduced into medical curricula at an early stage and constantly strengthened by reiteration throughout the clinical curriculum[13,14]. A step in the right direction would be the setting up of departments of clinical pharmacology in teaching hospitals to help improve prescribing practices and safety[15]. In our opinion the doctors of the future should also be introduced to the concept of drug economics and instructed in the 'art' of objectively analysing drug promotional material It is imperative that an effective system of continuing medical education (CME) for primary care physicians be introduced. Currently, the only source of continuing education for primary care physicians, other than drug promotional material are the industry sponsored publications. Most of these are naturally geared to industry marketing strategies and objectives. The only suitable countermeasure is an effective educational outreach programme for physicians[16,17] or in some instances even an educational advertising campaign[18]. Such strategies have been suceessful in some developed countries and are cost-effective[19]. In Pakistan, this role needs to be taken up by our Universities, the College of Family Physicians and postgraduate medical institutions, who should provide regular CME programmes. The College of Family Physicians should consider making

participation in such CME activities mandatory for its members. Finally but perhaps most importantly, a vital requirement for most national drug policies and rational drug use campaigns is the political will of the government[20] . A government eommitted to an essential drugs and rational drug use programme should also streamline its regulatory and watchdog bodies, and keep a strict control on drug advertising and marketing. Many countries have benefited from adopting an essential drugs policy and programmes[21]. An example is that of Bangladesh, a country racked with poverty which took the decision' to implement a national essential drug policy in 1982. Despite initial opposition, Bangladesh had the political will to see the policy through and now has access to a three folds greater the quantity of the most essential drugs at substantially lower prices than before[22].

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