The Prescribing Practice of Primary Health Care Physicians in Riyadh City

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The prescribing habits of physicians in primary health care centres were studied to assess the contents of prescriptions and the extent to which attempts were made to educate the patient about the prescribed drugs. The study involved six physicians at three primary health care centres in Riyadh city, and 1090 consultations, over a 4-week period. The prescribing rate was assessed, also the weighted scores of contents of the issued prescription, and whether an effort was made to educate the patient or not. Overall 85.3% of the examined patients were issued with prescriptions. On average each prescription contained 1.7 therapeutic items. Of those prescribed 96% were available within the essential drug list. The prescription content score was generally unsatisfactory. A drug generic name was used in 8.5%; in 78% tablet numbers were used to quantify the recommended dose and an inappropriate treatment course was detected in 8.7% of the examined prescriptions. The education of the patient about the prescribed agent was limited. Important areas like drug side-effects and possible interactions were more likely to be ignored than discussed during consultations. Most consultations at primary health care centres resulted in a prescription being issued. The content of the prescription needs further improvement, the issuing of drugs by their generic name and the usage of the standard international units to determine the recommended dose require more emphasis. The potential for patient education in relation to commonly used pharmaceutical products is being missed in the primary health care setting.

Drug prescribing is one of the important activities that medical practitioners perform daily often in order to relieve doctors from the burden of diagnosis.1 Prescribing in primary health care is unique. As many patients can present with benign, self-limiting, or non-specific illness, quite often management decisions are taken without diagnostic confirmation, and occasionally practitioners are
compelled to prescribe for social reasons, and a prescription can be used as a disengaging device.\(^2,3\) Moreover, the problems of non-compliance and misuse are more likely to develop, as the patient’s autonomy is well maintained most of the time.\(^4\)

In the UK, almost two-thirds of consultations in general practice ended with drug prescriptions and general practitioners were responsible for 75% of the expenditure on medications.\(^5\) The financial implications together with the concern of governments, medical practitioners and patients about the quality of prescribing, its safety, relevance and effectiveness have contributed to the emergence of the concept of rational prescribing.\(^6,7\) In developed countries different approaches were suggested to achieve such an objective. For example the implementation of a list limit on certain therapeutic agents,\(^8\) the substitution of generic drugs for proprietary products,\(^9\) the development of local drug formularies,\(^10,11\) the organization of educational projects and audit exercises.\(^5\) Furthermore the setting of a prescription charge has also been used.\(^12\)

In Saudi Arabia, the annual budget allocated for health services is escalating. In 1979, 2.61% of the national budget was devoted to the Ministry of Health.\(^13\) Ten years later, the corresponding figure was almost doubled to 5.4%, and over the years an increase in the total drug bill has been observed; during the last year the bill has expanded by 34%.\(^14\) In an attempt to rationalize the national drug bill, a standard list of 124 essential drugs was produced to be used in primary health care centres.\(^15\) It is composed of therapeutic agents that can provide adequate and appropriate treatment for 90% of community problems. The list has been subjected to several revisions, the latest being in mid-1988.\(^16\)

The present study has been conducted to find out some information about the prescribing patterns of a group of physicians in three primary health care centres in Riyadh city. The study focused on the prescribing rate, types of drugs commonly prescribed, the use of the drug brand or generic name, and the nature of the information related to the issued drugs that was communicated to the patients during the consultations.

### Methods

A prospective study of the prescribing habits of physicians in primary health care was conducted in Riyadh city over a 4-week period (from February to March 1991). Riyadh city with an estimated population of 2,050,209 is served by 56 primary health care centres and 10 major hospitals of different types.\(^16\) The three centres involved in this study were selected by a simple random method from the list of centres located within Riyadh city boundaries. They serve different catchment areas with a total population ranging between 26,654 and 30,000, and represent different socioeconomic strata. Health care is provided through a team that consists of six to eight general practitioners, and other health care personnel. The Saudi sociotheological background supports the practice that female patients preferably be examined by female doctors. Subsequently, two doctors one from each gender who have been practising as primary care physicians for at least 2 years were randomly selected from each centre. A precoded data collection sheet was used to minimize the paper work for the trained final year medical students who sat-in with the general practitioner during the consulting sessions. The data sheet consisted of items such as the patient’s demographic data, name, plus the type, and number of drugs issued in each consultation, and information communicated to the patient during the consultation. The data collection took place in two morning sessions and one afternoon session for each doctor. The prescribing behaviour was explored in three ways:

1. **Generally:** The proportion of the consultations which ended with the issuing of prescriptions, the types of prescriptions and the proportion of the prescribed items available within the essential drug list. The prescribed agents were categorized into initial and repeat prescriptions. Initial prescriptions were those issued as a complete course of treatment, or the first in a series of prescriptions for newly diagnosed conditions, or as addition to or replacement for an existing treatment. Repeat prescription on the other hand, include those initiated by other practitioners, or those dispensed for more than one occasion in a series of prescriptions for the same problem.

   Furthermore the therapeutic agents were sub-categorized according to the expected actions into: symptomatic agents i.e. those used mainly to alleviate symptoms, but which would not change the underlying pathology if any existed, such as simple analgesic and cough medication. Curative agents were those with definite actions and usually used for precise indications, such as antibiotics. Supportive agents were those which could modify the disease process if taken continuously on regular basis, such as hypoglycaemic and antihypertensive agents. Intermediate agents included those with specific pharmacological actions but which were used as a diagnostic test or a therapeutic trial, such as antacids.\(^17\)

2. **Content:** The prescriptions were examined for specific variables. Those were either present or absent, and those present were given a weighted score depending on their importance in a prescription context. The maximum scores were 20.

3. **Patient education:** This was defined as information in the form of a sentence or phrase that could
increase the patient's understanding of the prescribed agents. Examples were the expected side-effects, drug interactions, when to expect a response, conditions calling for discontinuation of the treatment and urgent consultations. This type of information was either discussed with patient or not. The collected data were analysed, and frequency distribution tables were constructed. The prescribing rates were defined as the number of prescriptions written during the study period multiplied by 100 divided by the total number of consultations during the same period. The monthly prescribing rate per doctor was estimated by dividing the total number of prescription items over the number of the participating physicians. The $\chi^2$ test was used to investigate the differences between the prescribing habits of physicians in the studied centres.

Results

A total of 1090 consultations were witnessed during the study period, of which 360 (33%), 350 (32%) and 380 (34.9%) were in the first, second and third centres respectively. Of the total patients 69.5% were males and 30.5% were females; 72% were Saudi, children below the age of 10 years of age represented 33.6%, while elderly (over 60 years of age) formed 6.5% of the examined patients. The proportions of the consultations which resulted in the issuing of prescriptions were 86.7%, 90.9% and 78.4% in the three centres (Table 1), and the differences were statistically significant ($p < 0.001$). The total number of the prescribed items was 1580. An average consultation ended with at least 1.7 prescription items. Of the drugs prescribed 1338 (84.7%) were initial items and 242 (15.3%) were items repeated mainly for chronic conditions such as diabetes mellitus and hypertension. Of the prescribed agents 96.4% were procurable from the essential drug list and in only 3.6% patients had to purchase them from commercial pharmacies. Table 2 shows that of the total drugs prescribed, 51% were symptomatic, 18.9% were curative, 15.6% were supportive and 14.4% were intermediate agents. From the pharmacological point of view, analgesics (28%) antibiotics (18.9%) and antitussive agents (17.7%) were the most commonly prescribed agents, while the least frequent were hypoglycaemics (1.3%) and bronchodilators (1%). A statistically significant difference ($p < 0.001$) was detected between physicians in the three centres.

When the prescription contents were examined (Table 3) the median content scores were 9 (range 4–15), patient identification data such as name, age, and file numbers were recorded in nearly all (98.7%) prescriptions, while the diagnosis was documented in 87.3%. The drug generic name was used in 8.5% of the examined prescriptions and drug tablet numbers were used to quantify the dose of the prescribed agents in 83.1%, while in 16.9% the recommended dose was stated using the international standard units. The frequency of drug administration was documented in 58.9% of the examined prescriptions but was absent in 41%. Occasionally (8.7%) an inappropriate duration of the treatment course was detected.

In relation to patient education (Table 4), it was found that 36.2% of those who received prescriptions, were informed verbally about the frequency and route of administration of the prescribed agent. Facts relating to side-effects and interactions with dietary constituents and other drugs were discussed with 4.3% of the patients. Measures to be taken if an undesirable response developed, or situations calling for treatment discontinuation and urgent consultation were described or discussed with only 2.2% of patients.

Discussion

The supply of essential drugs to the community based on their actual needs is an important element of a primary health care programme. The prescribing rates estimated by the present study range between 10.2 and 11.8 prescriptions per patient per year. The figures are difficult to interpret in national terms but it is greater than that reported for New Zealand (8.5), Australia (7.7), the UK (7.0) and Sweden (4.7), and lower than that of the USA (16.6). Variation in prescribing rates observed between centres have been documented by others, and can be accounted for by differences in morbidity patterns, social perceptions toward illness and the clinical skills and experiences of health professionals. High prescribing rates may signify that doctors prescribe drugs too readily. The implications of writing prescriptions for nearly all the patients in health and economic terms are enormous. Furthermore, the reason for prescribing should be discussed

<table>
<thead>
<tr>
<th>Table 1</th>
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<tbody>
<tr>
<td><strong>The presenting pattern in different centres</strong></td>
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<tr>
<td><strong>Venue</strong></td>
</tr>
<tr>
<td>Consultation outcome</td>
</tr>
<tr>
<td>No. (%)</td>
</tr>
<tr>
<td>Prescription</td>
</tr>
<tr>
<td>No prescription</td>
</tr>
<tr>
<td>$\chi^2 = 23.26$</td>
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</tbody>
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Table 2

The therapeutic types of prescriptions issued in the three centres

<table>
<thead>
<tr>
<th>Centres</th>
<th>Centre 1</th>
<th>Centre 2</th>
<th>Centre 3</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Therapeutic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>types</td>
<td>n = 544</td>
<td>n = 572</td>
<td>n = 464</td>
<td>n = 1580</td>
</tr>
<tr>
<td>Symptomatic</td>
<td>No. (%)</td>
<td>No. (%)</td>
<td>No. (%)</td>
<td>No. (%)</td>
</tr>
<tr>
<td>308 (56.6)</td>
<td>306 (53.5)</td>
<td>194 (41.8)</td>
<td>808 (51.1)</td>
<td></td>
</tr>
<tr>
<td>Curative</td>
<td>102 (18.8)</td>
<td>100 (17.5)</td>
<td>96 (20.7)</td>
<td>298 (18.9)</td>
</tr>
<tr>
<td>Supportive</td>
<td>78 (14.3)</td>
<td>94 (16.4)</td>
<td>74 (15.9)</td>
<td>246 (15.6)</td>
</tr>
<tr>
<td>Intermediate</td>
<td>56 (10.3)</td>
<td>72 (12.6)</td>
<td>100 (21.6)</td>
<td>228 (14.4)</td>
</tr>
</tbody>
</table>

\[ \chi^2 = 38.06 \quad p < 0.0001 \]

Table 4

<table>
<thead>
<tr>
<th>Patient education (n = 928)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education topic</td>
</tr>
<tr>
<td>------------------------------</td>
</tr>
<tr>
<td>Route and frequency of administration</td>
</tr>
<tr>
<td>When to expect a response</td>
</tr>
<tr>
<td>Duration of treatment</td>
</tr>
<tr>
<td>Side-effects and interactions of drugs</td>
</tr>
<tr>
<td>Situations calling for treatment discontinuation and urgent consultation</td>
</tr>
</tbody>
</table>

with the receiver. The average number of drug items per prescription per patient per consultation reported here (1.7) is greater than the average reported for developed countries,20 but lower than that cited by Al-Nasser (2.3) and Sebaie (3.0).21,22 This apparent reduction in the number of the prescribed items per prescription per consultation may be attributable to several factors including the awareness of the general population about the hazards of drugs in general and polypharmacy in particular, the growing interest of health professionals in the quality of their prescribing performance and the presence of the essential drug list. Unfortunately our knowledge about prescribing behaviour prior to the essential drug list era is limited. Therefore a large cross-sectional survey is needed to assess the long-term effect of that list on the prescribing practice of primary health care physicians.

The individual style of writing prescriptions is usually reflected most accurately in the initial prescriptions23 and as 84% of the total prescriptions were initial items, one could anticipate that the results obtained represent the actual prescribing behaviour of the recruited physicians. Thus, the difficulties discovered may help in defining the short- and the long-term objectives of any educational programme aimed at optimizing the quality of prescribing. On the other hand, the 15% of repeated items and the previously documented changes in the dynamics of the Saudi population20 can allow us to forecast the probability that repeat prescriptions will become a sizeable problem for prescribers. As such, efforts should be made to monitor that activity. Future work is needed to determine the current magnitude of repeat prescribing and different techniques available to monitor it. Overall, symptomatic treatment is a major cause of prescribing. This practice reflects the practitioner's attitude and approach to illness, which may increase patient expectations, and impose a great economic burden on the health services. Therefore, it may be necessary for practitioners to consider critically when and what to prescribe, when to consider non-pharmacological alternatives, and how to modify the help-seeking behaviour of their patients.

The habit of writing drugs using their generic name was uncommon among the participating physicians. The advantages and the disadvantages of this behaviour are well known.24,25 Moreover, the therapeutic risks involved in switching between different brands of the same drug can be minimized by adhering to an essential drug list, containing generic preparations from reliable
sources. That will ensure consistency of purity and bioavailability, and may reduce the cost of the prescribed agents. The small proportion (4%) of drugs obtained from commercial pharmacies, reflects the positive impact of the essential list programme on drug availability within the centre. Other important areas in prescribing worthy of attention are the lack of use of standard units of the prescribed drug to state the dose, and the occasional inappropriate treatment course such as antihypertensive drugs used as a therapeutic trial for 3–7 days. This observation implies that there is a need for periodic continuous educational activities to update practitioners’ knowledge about pharmaceutical products. Several methods have been proposed to achieve such objectives. Furthermore, the presence of a national prescription pricing committee, who monitor dispensed prescriptions, and provide regular feedback to the practitioners about their current prescribing behaviour, would allow comparison with other centres and with standard national figures, and it would permit primitive but useful quality judgements to be made. Such a scheme would maintain the consciousness of prescribers about their performance, and strengthen the desire to improve it.

This study revealed that sharing information about drugs with patients is limited. Important issues like drug interactions and possible undesirable effects were likely to be omitted, as only 4.3% of patients were given the privilege of receiving this knowledge. Several factors including patient personality, practitioners’ work load, short consultation time and occasionally language barrier may contribute to this deficiency.

A working party of the patients’ liaison group of the Royal College of general practitioners in the UK, identified areas of consumer interest related to prescribed agents. Furthermore, Campbell cited that patients can be actively involved in recognizing and reporting a drug’s reactions, provided that they were coached to do so. Thus, the concept of presenting the treatment regimen and the associated information, in language that patients can understand and remember should be emphasized as an activity of primary health care physicians. Moreover, information could be remembered more effectively if important information were repeated explicitly. It has been shown to be important to use short sentences, avoid jargon and invite patients to restate instructions in their own words. To improve compliance and the overall outcome a simple set of written instructions can be used.

In conclusion this study has documented that the majority of consultations in primary health care centres end with the issuing of a prescription. The presented data and the high prescribing rate discovered reinforce the need for a comprehensive revision and scrutiny of prescribing behaviour.

The observed defects pinpoint areas to be addressed in any educational activities aimed at encouraging more rational prescribing. Conventional channels for up-dating practitioners’ knowledge of the range of drugs available should be encouraged, and periodic amendment of the national essential drug list should be promoted taking into consideration the prescribers’ comments and opinions.

References