Prescribing pattern and Drug indicators in Patients Visited by General Practitioners and Specialists in Ardabil City of Iran

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ABSTRACT

Drug is an important and strategic commodity and a basic need of the people in all countries. The aim of this study is to determine the drug use patterns and descriptive analysis of prescriptions of doctors in Ardabil city of Iran. A retrospective study was carried out on 2000 randomly-selected prescriptions. Data were obtained on demographics, prescribing indexes and analyzed by descriptive statistical methods by SPSS software. Of the 2000 prescriptions, 822 (41%) and 1178 (59%) were for men and women, respectively, by a female to male ratio of 1:0.69. The mean age of the patients was 31.6 ± 21.3 years, ranging from one to 91. 1306 (65.3%) of all prescriptions were for general practitioners and the rest for specialists. The average number of drugs per prescription was 3.58 ± 1.3, ranging from 1 to 9 drugs. Dexamethasone (219, 24.7%) was the most frequently prescribed medicine. Results demonstrated that the average number of drugs per prescription and the rate of prescribing injectable drugs were more than world standards and it is necessary to reduce these indexes and irrational use of drugs through interfering with patients' belief and physicians' attitudes.

Keywords: Medicine, Utilization, Pattern, Ardabil, Iran

Drug utilization research was defined by WHO in more medications [2-3]. Medical and pharmaceutical 1977 as “the marketing, distribution, prescription, and 43 services are one the main and expensive needs of 26 use of drugs in a society, with special emphasis on the 44 people. These two specifications make them be so 27 resulting medical, social and economic Consequences”. 45 significant that creation of a rational pattern in utilizing 28 Epidemiology is defined as “the study of the 46 medical and pharmaceutical resources is a national 29 distribution and determinants of health-related states 47 necessity. According to current estimations, more than 30 and events in the population, and the application of this 48 million prescriptions are annually dispensed in Iran. 31 study to control of health problems”. Drug utilization 49 The average number of drugs per prescription, as 35 analytical studies. Drug utilization research is thus an 51 showing a significant difference with world average 36 essential part of pharmaco-epidemiology as it describes near 1.5) [4-6]. Of these prescriptions, antibiotics, 37. of drug exposure, 53 injectable drugs, and corticosteroids, as the three most 38 Drug utilization research and pharmaco-epidemiology 54 important drug categories, are ordered for 54%, 44%, 39 may provide insights into the following aspects of drug 55 and 32% of patients, respectively. Drug utilization 40 use and drug prescribing [1]. Medicine is an important 56 pattern is an important factor determining the 32 and strategic commodity and a basic need of the people 57 effectiveness of a health providing system. In Iran, most 42 in all countries. Drug prescribing for older patients is 58 of prescribed drugs are antibiotics, analgesics, and anti- 43 of the main challenges because they are three times 59 inflammatory drugs. Antibiotics are prescribed for 25%
and 30% of patients in Europe and the U.S., respectively, but this number is always more than 50 in Iran; nevertheless infectious diseases are not a major health problem in Iran. The irrational use of drugs and self-medication may result in many health problems for patients, such as increasing the risk of adverse drug reactions, late diagnosis and prolongation of illness, patients’ dissatisfaction, affecting patient-physician relationship, and finally raising the cost of treatment.

According to WHO statistics, Iran is among the 20 trial countries such as the U.S., UK, Germany, France and Japan. The aim of this study is to determine pattern of drug utilization in Iran; nevertheless infectious diseases are not a major health problem in Iran. The irrational use of drugs and self-medication may result in many health problems for patients, such as increasing the risk of adverse drug reactions, late diagnosis and prolongation of illness, patients’ dissatisfaction, affecting patient-physician relationship, and finally raising the cost of treatment.

### RESULTS

The average number of drugs prescribed for males and females was 3.57 (SD = 1.3) and 3.58 (SD = 1.3). In all males and females, the maximum and minimum number of drugs per prescription was more than 70%. In Iran, the cost of prescribed drugs is allocated for imported drugs. In other words, more than 25% of all prescriptions, midwives and gynecologists had the maximum and minimum number of drugs per prescription, respectively. Also, in Khadamat Darmani procurement of drugs required. Antibiotics are the 4th most prescribed drugs in Iran. Adding non-prescription sold antibiotics will move this position to the antibiotic prescription, respectively. Of all 7158 prescribed drugs, higher. Official statistics published by Ministry of Health showed that the average number of medications other drug forms. Of all prescriptions, 890 had at least one injectable drug, indicating that 44.7% of the drugs were injectable and the rest were procured. Of all 1258 prescribed drugs, injecting corticosteroids, and injectable drugs [9]. Published more than others, with 59% and 4.9%, respectively. Statistics in Iran showed that the rate of drug use growth is higher than world and industrial countries such as the 25 most frequently-prescribed categories in patients; the most drug-utilizing countries with secondary rank in the 2006, ranging from 1 to 9. In Ta’min Ejtemaei organization Asia after China. Annually, each Iranian person uses more prescriptions, midwives and gynecologists had the most drug-utilizing countries with secondary rank in the 2006, ranging from 1 to 9. In Ta’min Ejtemaei organization Asia after China. Annually, each Iranian person uses more prescriptions, midwives and gynecologists had the maximum and minimum number of drugs per prescription, respectively. Also, in Khadamat Darmani procurement of drugs required. Antibiotics are the 4th most prescribed drugs in Iran. Adding non-prescription sold antibiotics will move this position to the antibiotic prescription, respectively. Of all 7158 prescribed drugs, higher. Official statistics published by Ministry of Health showed that the average number of medications other drug forms. Of all prescriptions, 890 had at least one injectable drug, indicating that 44.7% of the drugs were injectable and the rest were procured. Of all 1258 prescribed drugs, injecting corticosteroids, and injectable drugs [9]. Published more than others, with 59% and 4.9%, respectively. Statistics in Iran showed that the rate of drug use growth is higher than world and industrial countries such as the 25 most frequently-prescribed categories in patients; U.S., U.K., Germany, France and Japan. The aim of this study is to determine pattern of drug utilization in Iran; nevertheless infectious diseases are not a major health problem in Iran. The irrational use of drugs and self-medication may result in many health problems for patients, such as increasing the risk of adverse drug reactions, late diagnosis and prolongation of illness, patients’ dissatisfaction, affecting patient-physician relationship, and finally raising the cost of treatment.

### MATERIALS AND METHODS

This is a retrospective cross-sectional descriptive study that has been done on 2000 prescriptions, randomly selected from all archived prescriptions. The selection is done by season in each insurance organization. Information was analyzed by descriptive statistical methods in SPSS.

### DISCUSSION

Studying Iran’s drug utilization in recent ten years showed that the mean growth of drug costs is annually more than 25%. Ninety percent of subsidization of drugs is allocated for imported drugs. In other words, the mean growth of drug costs for the imported drugs is more than 70%. In Iran, the cost of prescribed antibiotics is more than 41% of first thirty commonly-prescribed drugs. In this study, antibiotics and injectable
Table 2. Top 10 prescribed injectable drugs by specialty

<table>
<thead>
<tr>
<th>Specialty</th>
<th>Dexamethasone</th>
<th>Penicillin</th>
<th>Dexamethasone</th>
<th>Betamethasone</th>
<th>Metoclopramide</th>
<th>Hyoscine</th>
<th>Ceftriaxone</th>
<th>Penicillin 800,000 IU</th>
<th>Combinations</th>
<th>Normal Saline</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>G.P.</td>
<td>187 (85.4%)</td>
<td>157 (94%)</td>
<td>79 (98%)</td>
<td>31 (65.4%)</td>
<td>46 (74.2%)</td>
<td>55 (95%)</td>
<td>44 (78.6%)</td>
<td>44 (93.6%)</td>
<td>39 (91%)</td>
<td>777 (87.3%)</td>
<td></td>
</tr>
<tr>
<td>Neurologist</td>
<td>2 (1%)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Gynecologist</td>
<td>2 (1.9%)</td>
<td>1 (1%)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1 (1.8%)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Orthopedist</td>
<td>-</td>
<td>1 (0.6%)</td>
<td>18 (23.1%)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Dentist</td>
<td>16 (7.3%)</td>
<td>3 (1.8%)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>8 (14.3%)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Pediatrician</td>
<td>-</td>
<td>2 (1.2%)</td>
<td>2 (2.5%)</td>
<td>1 (1.3%)</td>
<td>-</td>
<td>1 (1.8%)</td>
<td>1 (2.3%)</td>
<td>8 (9.9%)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Internist</td>
<td>2 (1%)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1 (1.8%)</td>
<td>1 (2.3%)</td>
<td>-</td>
<td>-</td>
<td>4 (0.5%)</td>
<td>-</td>
</tr>
<tr>
<td>Midwife</td>
<td>5 (2.3%)</td>
<td>3 (1.8%)</td>
<td>-</td>
<td>-</td>
<td>8 (13%)</td>
<td>1 (1.7%)</td>
<td>1 (2.1%)</td>
<td>-</td>
<td>15 (1.7%)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Others</td>
<td>5 (2.3%)</td>
<td>3 (1.8%)</td>
<td>6 (7.7%)</td>
<td>-</td>
<td>7 (11.3%)</td>
<td>2 (3.3%)</td>
<td>2 (4.6%)</td>
<td>28 (3.1%)</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>219 (24.7%)</td>
<td>167 (18.8%)</td>
<td>81 (9%)</td>
<td>78 (8.8%)</td>
<td>58 (6.5%)</td>
<td>47 (5.3%)</td>
<td>43 (4.8%)</td>
<td>888 (100%)</td>
<td>-</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The data used in study is the result of a registered research in Ardabil University of Medical Science. The authors would like to thank personnel of Drug and Food Unit for their help in sampling and data gathering.

ACKNOWLEDGEMENTS

The results represent the irrational use of drugs among patients in Ardabil. There are many factors which directly or indirectly have an effect on drug utilization. Lack of the community awareness is the basis of the problem. As a matter of fact, until the patients’ knowledge of drugs are not improved and drugs are not considered as potentially-harmful substances which always need a careful prescription only by a physician, the incorrect cycle of irrational drug use will not cease. Patient-physician monetary relationship, non-perceptional drug sale, absence of a smart system of controlling drug sale and utilization are secondary effective factors in irrational drug utilization in Iran.
REFERENCES


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