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Brief Communication

General Physicians and Prescribing Pattern in Isfahan, Iran

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Prescription is one of the principle issues in the rational treatment. Irrational use of medicines has become a global problem in many countries. The World Health Organization (WHO) has suggested several indicators for evaluating the quality of drug use at health facilities. Some prescribing Indicators included; average number and type of prescribed drugs, percentage of antimicrobial and injectable drugs, percentage of drugs prescribed by generic name and from essential drugs list and mean cost of prescriptions.[1,2]

In Iran, national drug policies and regulatory systems have been developed to govern the process of prescription. In a regular drug-use survey, the prescriptions data from all physicians around the country are collected. These data are analyzed by the Rational Use of Drugs (RUD) Committee in Food and Drug Deputy of the Ministry of Health and Medical Education. In a regional setting, this process is done by medical sciences universities and health services. The activities of these Committees would provide potential quantitative and qualitative sources of data about drug use in a variety of local health facilities. The data would be helpful in defining problems in drug use patterns and also in identifying motivating factors and underlying causes including informational, economical, social, cultural and regulatory factors. During the last decade, various intervention approaches have been used for improving the prescribing practice.

In Isfahan University of Medical Sciences, the committee of RUD was established by Food and Drug Deputy in 1996. The prescriptions data from all general and specialist physicians are collected from 20 cities of Isfahan province and analyzed using a computer software program (Rx Analyzer). Isfahan province is situated 400 km from Tehran in the center of Iran. In 2010, 4463710 prescriptions from Social Security Insurance Organization (an Iranian public insurance organization) issued by general practitioners were analyzed. Then the RUD Committee reported the results of survey to each physician for subsequent interventions.

Table 1 shows the prescribing pattern of general physicians in Isfahan province of Iran which is very similar to the pattern of the country.[3] The mean item of drugs per prescription (3.34) shows high rate of polypharmacy. There is no universal or standard for the number of drugs prescribed per client and it is variable from 1.4-3.8 in developing countries and 1.3-2.2 in developed countries.[4] Pharmacological complexity of new drugs, ageing of population and lack of confidence resulted in increasing use of polypharmacy. Inappropriate and unnecessary drug prescribing may lead to higher adverse drug reactions (ADRs) and also higher costs.

Table 1: Prescribing pattern of general physicians in Isfahan province of Iran (2010)

Prescribing Pattern	
No. of prescriptions	4463710
Mean No. of drugs per prescription	3.34
Mean cost of prescriptions (I.R. Rials)	35009
Antimicrobial drugs (%)	51.25
Injectable drugs (%)	49.25
Corticosteroid drugs (%)	26.75

Although during the last decade, the quality of prescription has been improved in Iran,[3] the results of this survey showed that antibiotics, corticosteroids and injectable drugs are still prescribed frequently and probably inappropriately. About half of patients (51.25%) received an antibiotic. The pattern of antibiotic prescribing showed that penicillins were the most frequently prescribed antibiotics including amoxicillin (5.9%) and penicillin 6-3-3 (5.53%), followed by cefixime (3.62%) and azithromycin (2.74%). The rate of antibiotic prescription is variable in developing countries from 17.5% (in Lebanon) to 60% (in Jordan).[5,6] In developed countries, the antibiotic prescribing is much lower than developing countries (15.3% in USA).[7] Irrational and overuse of antibiotics result in emergence of drug resistant organisms. Large volumes of antibiotics are inappropriately prescribed for mild and non-bacterial infections of upper respiratory tract. Wrong prescribing of third generation cephalosporins also increases the induction of microbial resistance.

The mean percentage of patients receiving an injectable drug was 49.25%. In some developing countries such as Jordan,

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the percentage of prescriptions involving injections is very low. The injection use is 11% in Zimbabwe, 36% in Sudan and 45% in Indonesia.[8] In Pakistan, 68% of patients have received at least one injection during 3 months study.[9] The request of patients for receiving injections and widespread misuse of injectable medications is a major health problem in many developing countries. Prescription of an injection allows the charging of a higher fee for service. Moreover, high proportions of injections are given by inexpert individuals with incomplete knowledge about safe practices and also in places without resuscitation requirements. Unsafe injection poses health risk to the recipient, health workers and community, and could represent a major source of morbidity and mortality.

The mean percentage of patients receiving corticosteroid drugs was 26.75%. Unfortunately, corticosteroids are over-prescribed and often given without indication in Iran during recent years. Various side effects are associated with steroids use and corticosteroids should not be used when effective alternative medications like NSAIDs are available. Corticosteroids have potential for abuse/misuse both by the physicians and patients.[10]

Our results also showed seasonal variability in prescribing indicators. There were higher uses of antibiotics, corticosteroids and injectable drugs in the winter and all indicators were lower in the summer.

Although various educational, managerial and regulatory strategies have been developed to promote rational drug use, there is still poor-quality prescribing performance by general practitioners in Isfahan province. Changing existing prescribing habits is very difficult and the most effective intervention methods should be identified for changing physicians' prescribing behavior. Some interventions for achieving rational drug use include; 1) persuasive face-to-face intervention for education of particularly repeated problem-oriented physicians, 2) targeted in-service training of health workers, 3) training of pharmacists and public education, and 4) consideration of adequate time for detailed communication between patients and health care workers to clarify misunderstandings and help to reduce medicine overuse.

Overall, RUD Committee should identify the effective intervention approaches and persuasive educational materials to achieving rational prescribing in Iran.

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