Challenges and Achievements of Promoting Rational Use of Drugs in Iran

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Abstract
Rational use of drugs is one of the major issues in health systems. Analyzing the prescriptions would be of help in recognition of physicians' behavior and population beliefs. The prescriptions were analyzed with "Noskhe Pardaz" software and the major indications in 10 years period between 1998 and 2007 were extracted. The mean item of drugs per prescription, percent of prescriptions including antimicrobials and injectable drugs decreased during study period. Prescriptions including corticosteroids increased. The National Committee of Rational Use of Drugs (NCRUD) activities to educate physicians, general population and children in rational use of drugs were efficient. The results show reduction of irrational use of drugs.

Keywords: Prescribing practice, Essential drugs, Iran

Introduction
One of the most important duties of health authorities is to ensure the efficacy and cost effectiveness of health care system services. Developing countries have limited budgets specified to health care, therefore they need good planning to provide essential drugs and promote rational use of drugs to reduce the cost of health services. The World Health Organization has provided the Essential Drugs List (EDL) and Medicine Policy strategies (1). Pharmaceuticals (Medicines) are essential parts of treatment and prevention in health care systems. They may be regarded as two-sided swords and therefore the rational use of drugs is very important issue, which must be paid more attention to evaluate the current behavior of prescribers and consumers, and it is critical to plan new educational intervention for changing their inappropriate attitude. Many other developed and especially developing countries have Rational Use of Drugs (RUD) Committees to achieve this goal. For example, in Indonesia the Directorate General of Drug and Food Control is responsible for drugs programs and policies and provides EDL and monitor the use of drugs in community (2). Non-Governmental Organizations (NGOs) are also active in the promotion of RUD (3). In Iran, National Committee of Rational Use of Drug (NCRUD) was established by Food and Drug Deputy, Ministry of Health and Medical Education in 1996. NCRUD collects the prescriptions data from all around the country and analyze it to evaluate the trend of prescriptions' indicators and the pattern of drug use in the country. NCRUD have prepared a user-friendly computer software program of Prescription Analysis Program called "Noskheh Pardaz (Rx Analyzer)" which was tested for its validity and reliability in a pilot study in Mashhad University of Medical Sciences. Currently the software is in use by medical sciences universities and health services all over the country. A general physician, a pharmacist or a trained operator could easily be connected to the system from his own office, university, pharmacy, even at home and enter the prescriptions data. Even health insurance providers could have access to the software. During last 10 yr (1998-2007), data from close to 100 million prescriptions were collected and analyzed by Noskheh-Pardaz software. This has enabled us to set relevant guideline to promote RUD.

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Results and Discussion

As seen in Table 1, the mean item of drugs per prescription was 4.25 and 3.28 in 1998 and 2007, respectively. In 1998, 64.25% of prescriptions included Antimicrobial drugs while this amount decreased to 49% at the end of 2007. The percent of Injectable drugs in prescriptions was 49.25% in 1998 and decreased to 42% in 2007. Corticosteroids included 12.7% of prescriptions in 1998 while this amount increased to 23% in 2007. The mean item of drugs per prescription decreased significantly (22.8%) during these years. The polypharmacy rate in Iran is still higher than that in other countries such as Egypt, which is 1.6, and Barbados that is ranged from 1.82 to 3.12 (4, 5). The number of items per prescription in Indonesia is 3.5 (6). Today, the antimicrobial resistance due to irrational and overuse of antibiotics has become a major health problem in the world (7). The number of antimicrobial drugs in prescriptions decreased 23.73% from 1998 until 2007. Although, in the United States between 1995 and 2002, the amount of outpatients visits that led to antibiotic prescription decreased from 17.9 % to 15.3%. (8) Despite the decreasing amount of antibiotic use and prescription in European countries, it has yet increasing trend in developing countries (6, 9).

Injectable drugs in the prescriptions decreased 14.7% during this period. As the injection is a process that requires supervision by skilled health care providers, this decrease is regarded very important. However, the number of corticosteroids in prescriptions increased 29.5% in these years. Dexamethasone among corticosteroids is the most common prescribed drug for consecutive years. This could be a warning signal for public health system to pay close attention to corticosteroids usage and needs a more comprehensive study of physicians and patients dialogues. These data proves the efficacy of NCRUD activities and the need to continue its work in the future.

Table 1: Trend of prescriptions indicators in Iran as evaluated in 1998-2007 period by Ministry of Health and Medical Education

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<tbody>
<tr>
<td>Number of prescriptions</td>
<td>1151049</td>
<td>1558908</td>
<td>1860648</td>
<td>627909</td>
<td>1547257</td>
<td>672705</td>
<td>148628</td>
<td>124265</td>
<td>53009029</td>
<td>52279334</td>
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<tr>
<td>Mean item per prescription</td>
<td>4.25</td>
<td>4.00</td>
<td>3.75</td>
<td>3.50</td>
<td>3.50</td>
<td>3.59</td>
<td>3.37</td>
<td>3.39</td>
<td>3.43</td>
<td>3.28</td>
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<tr>
<td>Mean cost of prescriptions (I.R. Rials)</td>
<td>5582</td>
<td>5032</td>
<td>5868</td>
<td>7600</td>
<td>12552</td>
<td>16077</td>
<td>16715</td>
<td>20402</td>
<td>34210</td>
<td>33991</td>
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<tr>
<td>Antimicrobials</td>
<td>64.25</td>
<td>66.00</td>
<td>65.25</td>
<td>56.25</td>
<td>47.25</td>
<td>42.2</td>
<td>50.38</td>
<td>49.83</td>
<td>48.22</td>
<td>49.00</td>
</tr>
<tr>
<td>Injectable drugs</td>
<td>49.25</td>
<td>48.75</td>
<td>47.5</td>
<td>46.0</td>
<td>36.0</td>
<td>49.0</td>
<td>33.9</td>
<td>39.61</td>
<td>40.75</td>
<td>42.00</td>
</tr>
<tr>
<td>Corticosteroids</td>
<td>12.68</td>
<td>13.00</td>
<td>14.00</td>
<td>14.75</td>
<td>16.50</td>
<td>16.90</td>
<td>18.5</td>
<td>17.69</td>
<td>21.04</td>
<td>23.00</td>
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Conclusions
Inappropriate use of drugs leads to low quality of medical and public health care's and therefore wasting human and financial resources and can be harmful for patient and community health and finance. Experiences and achievements of rational drug use committees’ activities in many different and important fields like as public education, physicians education, control the use of drugs in hospitals during the last 10 yr have taught us that there are many possible approaches for policy-makers and health system managers to encourage improved and promoted use of medicines. Observed descending trends of the study indicators show the effectiveness of RUD activities, it is concluded that promotion, and improvement of their activities is quite necessary. We can use the successful experiences of other rational use of drugs committees in all over the world to improve our health care system.

References