

Pattern of Antibiotics Prescription in a Referral Academic Hospital, Northeast of Iran

Sir,

Irrational prescription of drugs could result in health and economic consequences which is evitable.^[1-3] In many countries, antibiotics are about 30%-50% of prescribed drugs.^[1,4]

Increased resistant species and decreased efficiency of antibiotics cause enormous costs in health systems.^[2-4]

A valid index called Anatomical Therapeutic Chemical-Defined Daily Dose (ATC/DDD) is defined by the World Health Organization (WHO) to study the drugs statistically.^[2]

This study was conducted in 2009 in internal, infectious disease, and surgical wards and intensive care unit (ICU) of 5th Azar Hospital affiliated to Golestan University of Medical Sciences. We studied 318 admitted patients who were randomly selected. Data gathered from patients' medical records. DDD/100 indicates the DDD of antibiotics per 100 occupied beds and is calculated as following^[2]:

$100 \times \text{dosage of antibiotic based on DDD index}$

$\frac{\text{Occupation index} \times \text{the number of hospital's bed} \times \text{study duration (days)}}{\text{DDD/100}}$

Among all recruited patients, 69% (220 cases) had received antibiotics. Total bed days occupation was 1791. DDD/100 bed days (also known as DBD) was 122.05 in which 76.84% were prescribed in intravenous forms.

Highest antibiotics prescription was seen in infectious diseases ward (259.62). Among 23 different prescribed antibiotics, the most (90.2%) were as following: Ceftriaxon (30%), clindamycin (21%), cephalosporin (12%), metronidazole (9%), gentamycin (8.3%), azithromycin (8%), and ciprofloxacin (4%).

In 20% of patients (55% of prescription in surgery ward), the antibiotics were used in case of prophylaxis for bacterial infection in clean or clean-contaminated surgery procedures; in 87% of these cases, antibiotics were used more than 24 h. In 26 cases, no certain reason was found for antibiotic orders.

Despite the efforts of different organizations and researchers to reduce the indiscriminate use of antibiotics in hospitals, unfortunately, this trend is still continuing.

In a study in five Children's Hospital, China (2002-2006); all antibiotics' usage was reported 68.2, 58.4, 65.6, 65.8, and 49.9 DDD/100 bed days which the third generation of cephalosporin's was the most prevalent. In 2002, the usage was two times more than others and this trend was decreasing during years.^[5]

In a similar study by Ebrahimzadeh *et al.*,^[2] in city of Sari, North of Iran the use of antibiotics increased from 95.4 DBDs in 2000 to 124 DBDs in 2005. Highest increase was seen in vancomycin (28.4 folds) and clindamycin (4.8 fold). Oncology ward, ICU, and general surgery consumed the most antibacterial agents in year 2000 and it changed to ICU ward, gynecology, oncology, and orthopedic in 2005. Cefazolin, ampicillin, ceftizoxime, and gentamicin were the most highly used antibiotics in 2000 and in year 2005, Cefazolin, ceftriaxone, gentamicin, and ciprofloxacin were the most prescribed antibiotics. Intravenous antibiotics accounted for 51.8 and 79.4% of total DBDs in first half of years 2000 and 2005, respectively.^[2]

More programmed efforts should be designed to decline the irrational and inappropriate usage of antibiotics, especially in academic hospitals.

Continuous medical education programs for physicians and nurses are among the programs with highest importance.

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