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Adverse Drug Reactions leading to hospital admissions: A prospective study

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Introduction: Adverse Drug Reaction (ADR)s are identified as fifth leading cause of death in USA, and estimated approximately 2.9%-5.6% of the hospital admissions are due to ADRs. The average cost incurred per patient in treating each ADR induced hospital admission was found to be Rs. 690 in India. Thus, ADRs not only increase the morbidity and mortality, adds to the overall healthcare cost.

Aim: To identify and assess the hospital admissions due to Adverse Drug Reactions and their cost involved in managing each Adverse Drug Reaction, in a tertiary care teaching hospital.

Methods: The study was conducted in the medicine wards of four tertiary care teaching hospitals in southern state of Karnataka, India for the period of 8 months (September 2006 to April 2007). WHO definition of an ADR was adopted. ADRs were reported through spontaneous reporting by healthcare professionals from the study units. The causality assessment of each suspected ADR was performed by using WHO probability scale, and the preventability was assessed using modified Hartwig and Siegel scale. Medications and ADRs were coded using WHO Anatomical, Therapeutic and Chemical classification (WHO ATC) and WHO Adverse Reaction Terminology (WHO ART) respectively. The cost incurred in treating the ADRs of each individual was calculated by considering direct and indirect costs.

Results: During the study period there were 6449 patient admissions to the study medical units. A total of 89 reactions were reported and evaluated from 82 (1.2%) patients who were attributed to be ADR-related hospital admission. Female predominance (54%) was noted over male (45%) with the median age of 38.11 years. The drug class most commonly implicated was NSAIDs [32 (35.9%)] followed by antibiotics [30 (33.7%)] and diclofenac was found common [13 (14.6%)] drug involved in causing these reactions. Most commonly involved WHO-ART system organ classes (SOC) in the reported ADRs were gastrointestinal system disorder [30 (36.5%)] and dermatological system disorder [26 (31.7%)]. Most of the reported ADRs were probable [48 (53.9%)] and 38 (42.7%) were possible reactions. Most of the ADRs were predictable [60 (73.1%)] and 70 (85.3%) were preventable. Patients admitted with an ADR had an average hospital stay of 9.32 days and the average cost incurred in managing each ADR was found to be Rs. 2,388 per patient.

Conclusion: Adverse Drug Reactions are a persistent and significant major public health concern in terms of human suffering and mortality. The incidence of hospital admissions due to ADRs was found comparatively less (1.2%) in our study from the studies of western countries. The study revealed that majorities of the ADRs were predictable and preventable, and the average cost incurred in managing each ADR was found Rs. 2,388. A successful ADR surveillance system in a country like India can have a greater impact on the medication use system to improve the quality of patient care and in reducing the occurrence of devastating and costly events.

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