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Letter to the Editor

Minimizing Adverse Drug Events in Elderly

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Virtually all medications can produce undesirable side effects. An adverse drug event is defined as an injury resulting from use of a drug. It takes into account, harm caused by the drug (such as adverse drug reactions and overdoses) and harm from use of drug (including dose reductions and discontinuations) [1]. Serious adverse events includes any severe outcome resulting in life or organ-threatening situation or death, significant or permanent disability requiring intervention to prevent permanent impairment or damage and requiring or prolonging hospitalization.

The elderly are more likely to experience these unpleasant effects as the result of age-related increase in amount of drug handling, drug-drug interactions, increased sensitivity to drug effects, and prevalence of predisposing conditions that can enhance the frequency and severity of such events. Clinicians can be wiser in prescribing drugs by double checking the drug dosages and allergies, adjusting doses for renal or hepatic impairment, decreasing follow up intervals for close monitoring, and intensifying patient education. An astute clinician should carefully plan an individualized and optimized drug regimen appreciating the complexities and co-morbidities of the elderly patient.

Serious adverse events in elderly include a fall with associated fracture, hemorrhage, hypoglycemia, profound hyponatremia, heart failure, stroke and arrhythmias [2,3]. Antibiotics, anticoagulants, digoxin, diuretics, hypoglycemic agents, anti-neoplastic agents and non-steroidal anti-inflammatory drugs are responsible for 60% of adverse drug reactions (ADRs) leading to hospital admission and 70% of ADRs occurring in hospital. However it is the cardiovascular medications, which is the most common medication category associated with adverse drug events in elderly [2,3].

Adverse drug events may result from medication errors, to be precise, errors in prescribing, dispensing, patient adherence, and monitoring or from adverse drug reactions in which there was no error, for example self medication with over the counter drugs [3]. Risk factors associated with ADRs in elderly include ageing physiology specifically, changes in pharmacokinetics and pharmacodynamics, multiple drug use promoting unexpected drug-drug interactions, female gender, multiple co-morbidities, length of hospital stay, and use of drugs that are inappropriate for elderly. Another important concern is whether these adverse drug events are preventable or are they inevitable. Often it is impracticable to implicate a drug responsible for ADR when multiple medications are consumed simultaneously.

Since the spectrum of ADRs spans from mere trivial to potentially fatal, most of these are under-diagnosed and under-reported. To add to the lack of authentic data, elderly have often either been excluded or under-represented from most of the drug trials. Under-prescribing and overprescribing frequently occurs as these suboptimal and irrational prescriptions are based on data extrapolated from these biased trials. Scientifically proven knowledge of the mechanism of ADRs in elderly will enable more rational and prudent therapeutic decisions by clinicians, or may be stimulate development of better prophylaxis or alternative therapies. Physician's education and sensitization is imperative to determine the appropriateness of prescribed drug so as to improvise and rationalize the prescriptions. Drug related adverse events needs to be minimized by active surveillance to ensure superior drug utilization, decreased hospital expenditure and improved quality of life. A collaborative organized framework needs to be developed to check likelihood of such occurrences.

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