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Inappropriate prescribing defined by START/STOPP criteria and association with adverse drug events in elderly hospitalized patients

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Background: The study is initiated as the result of lack published data on Adverse Drug Events (ADE) related to inappropriate use of medicine and prescribing among elderly patient in Malaysia and in the South East Asia region generally. This study would determine association of inappropriate prescribing (IP) which lead to inappropriate use of drug to Adverse Drug Events using Screening Tool to Alert Right Treatment (START) and Screening Tool of Older Person Prescription (STOPP) criteria as defined by several studies conducted on aging population worldwide. The author, a pharmacist collaborated with 3 clinical pharmacists and 3 medical specialists/physicians in this project focusing on patients' safety and ADEs.

Objectives: The main aim of the study is to provide descriptive information on the prevalence of potential inappropriate medications among elderly patient in Malaysia and its association to Adverse Drug Events (ADE). As Adverse Drug Event related to medication use among elderly are under reported in this country specifically and the South East Asia generally, the study help to determine any possible Adverse Drug Event causing hospitalization and incidence in selected hospital settings in Malaysia. Variables and potential risk factors for ADE are identified thus to be related to inappropriate medication use and inappropriate prescribing.

Methods: This study is conducted using Prospective Cross Sectional study design as hospitalized elderly patients aged 65 years and above would be studied over 5 months period of time in 3 national referral hospitals in central Malaysia involving 3 different departments (medical, surgical and orthopaedic). Patients admitted to these wards from the emergency department (ED) would be selected based on the study selection criteria. Inappropriate prescribing and inappropriate medications use would be determined using START and STOPP criteria. ADEs related to inappropriate medications are defined and verified by experts including medical specialists and clinical pharmacists in each respected hospital based on validated sources using Naranjo ADR probability scales. The association of ADE causing hospitalization to inappropriate medication use as the result of inappropriate prescribing is identified and rate of ADE avoidability is observed. Data is analyzed using chi square test for inappropriate prescribing prevalence result based on variables including age, gender, co-morbidities, social status, activities of daily living and more. Association of inappropriate prescribing to possible ADE is assessed using logistic linear regression.

Results: Inappropriate prescribing determined by the START and STOPP criteria showed a total of 125 (65%) from 191 elderly patients selected for the study. 60 (31.4%) inappropriate prescribing were detected by START while the rest are from the STOPP criteria (n= 65; 34%). Male gender is the one with the most IP (n=74; 59.2%) while patients with age ranges between 65-69 showed highest IP from both START (n=20; 33.3) and STOPP (n=24;36.9%). Admission to medical department contributed the largest number of IP compared to other departments (n=80; 64%) and co-morbidities with 3-5 diseases (n=71; 38.2%). Inappropriate prescribing assessed based from the START and STOPP criteria are significantly associated to adverse drug events (ADE) related to hospitalization (OR: 6.97, 95% CI: 2.59 – 16.73, p < 0.001).

Conclusion: Potential inappropriate medicines as the result of inappropriate prescribing defined by the START and STOPP criteria are among the leading causes and reasons of hospitalization among elderly patients as the result of adverse drug events.

Biography

Mohd Taufiq Bin Azmy, a pharmacist by profession, graduated with a degree of pharmacy from International Islamic University of Malaysia in 2007. He has been working in the pharmaceutical services for more than 6 years including hospital settings and community pharmacy. He is currently pursuing his study for Master's degree focusing on researches related to pharmacoepidemiology, drug safety and adverse drug events among elderly populations.

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