Polypharmacy, Inappropriate Prescribing and Adverse Drug Events in Japan

Yasuharu Tokuda, MD, MPH
Editor-in-chief, JGFM

Adverse drug events (ADEs) are harmful causes for illness and injury in patients and these events are related to polypharmacy and inappropriate prescribing. As Japanese population become older, prescribed drugs are rapidly growing because of the frequent multimorbidity among old patients and the increased availability of new drugs. Thus, many Japanese elderly now take a large number of medications well over the common definition of polypharmacy (5 drugs or greater in a patient). Additionally, inappropriate prescribing is prevalent probably from providers’ factor (fee for service system for a clinic or hospital pharmacy and strong promotion despite relatively little absolute risk reduction by drug use from pharmaceutical companies) as well as patients’ factor (requests from patients for medications such as a benzodiazepine for insomnia).

A pioneering study on ADEs among geriatric inpatients in five university hospitals conducted in Japan between 2000 and 2002 revealed that the prevalence of ADEs was about 9% and it was significantly related to the number of prescribed drugs.1 In 2007 Akazawa and Imai et al reported that 44% of a group of elderly Japanese patients used at least one potentially inappropriate medication (PIMs) over a 1-year period and that PIM use was associated with greater health care utilization and costs, while they developed the modified Beers criteria for elderly Japanese patients in 2008 by consensus among 9 experts.2

Falls in elderly are important issues potentially leading to morbidity and mortality from fractures and modifiable risk factors for falls should be investigated for possible prevention of falls. Kojima and Akishita et al showed that polypharmacy was associated with fall risk among Japanese geriatric outpatients in a cross sectional study in 2011 and a longitudinal study in 2012.3,4 By examining the prevalence of falls among community-dwelling Japanese elderly, additional study proved that taking at least four daily prescription medications were significantly associated with falls in men and women.5

A growing number of studies have been conducted and published in a few years recently. The use of polypharmacy was correlated with the risk of ADEs among hypertensive patients in a study over 60,000 Japanese elderly.6 A study conducted in an acute care hospital in Japan revealed that ADEs produced 5% of acute care elderly hospitalizations based on the strict criteria for ADEs and polypharmacy was significantly associated with these ADEs.7 The most common ADEs identified in this study were gastrointestinal bleeding, nausea and congestive heart failure.

Corresponding author: Yasuharu Tokuda, MD, MPH
JCHO, Tokyo, Japan
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Studies about elderly home care patients also noted that the prevalence of IP was high with risk factors including polypharmacy. In elderly home care patients, the medications most frequently related to ADEs included anticholinergic antihistamines, benzodiazepines, sulpiride and digoxin and the most common ADEs associated with benzodiazepines were frequent lightheadedness, somnolence or sleepiness, which increased the risk of falls and subsequent fractures in elderly patients.

In terms of PIMs as identified by the criteria by both the Screening Tool of Older Persons’ potentially inappropriate Prescriptions (STOPP) and the Screening Tool to Alert doctors to Right Treatment (START), risk factors for PIMs included polypharmacy among elderly home care patients in Japan. In an additional study on old-old patients (aged ≥85 years) visiting emergency department in a community acute care hospital, symptomatic ADEs due to polypharmacy were one of the most preventable causes leading to hospital admission.

As we understand a growing number of evidence from aforementioned rigorous observational research related to polypharmacy, inappropriate prescribing and adverse drug events in Japan, we now need to well-designed interventional studies to show the improvement of clinical outcomes by candidate interventions such as de-prescribing service, medication reconciliation program, or educations for both providers and patients. While Japanese national media recently scrutinized the polypharmacy issues revealed by politicians and bureaucrats, this journal welcome submissions about studies to propose and prove the solutions for improving drug prescription in Japanese elderly.

References


