

## **Polypharmacy and Adverse drug reaction in the elderly**

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**Citation:** . Amir Ahmed Polypharmacy and Adverse drug reaction in the elderly. Middle East Journal of Age and Ageing, Volume 15, Issue 2, June 2018. DOI: 10.5742/MEJAA.2018.93454

### **ABSTRACT**

Polypharmacy is common among older people ( $\geq 65$  years) due to the need to treat the increasing number of diseases that develop with aging. Polypharmacy is defined as the use of multiple medication. However, a second and more important definition for polypharmacy is the use of more medications than are medically indicated.

Polypharmacy is associated with an increased risk of adverse drug events, drug-interactions, medication non-adherence, functional decline, greater health care costs and multiple geriatric syndromes such as cognitive impairment, falls and urinary incontinence.

In general, older people are more vulnerable to adverse drug reactions than younger people. This is because they often have multimorbidity and use multiple medications. Moreover, age-related physiological changes in lean body mass, liver enzyme

activities, serum albumin, renal clearance, and age-related changes in the brain (e.g., degeneration of neurons, decreased brain volume and receptors, and dysregulation of neurotransmitters) can lead to altered drug pharmacokinetics and pharmacodynamics. These alterations may increase the sensitivity to the effects of drugs, especially those drugs that act on the central nervous system. Therefore, the evaluation of polypharmacy is of important concern in older people. Moreover, obtaining a thorough medication history is very important before any new medication is prescribed. In addition, comprehensive medication review and risk assessment should be carried out by interdisciplinary team to identify the polypharmacy and its adverse effects.