



■ Editorial

# Severe Adverse Drug Reactions in Korean Elderly Patients

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The geriatric population will continue to grow rapidly, doubling to 1.4 billion or 14% of the world's population by 2040. Elderly patients are at a high risk of adverse drug reactions (ADRs) due to decreased renal function, altered drug metabolism, and multiple comorbidities. ADRs increase the cost of patient care<sup>1)</sup> and require further investigation and treatment in many cases. In serious cases, they may induce longer hospital stays, and may even be fatal.

Won et al.<sup>2)</sup> investigated risk factors for serious adverse drug reactions (s-ADRs) through electronic submission (e-sub) in elderly inpatients. The severity of the ADRs was classified as serious or non-serious. The s-ADRs included death, life-threatening events, permanent disabilities, prolonged hospitalization, and other important medical events defined by medical professionals. Taking more than eight drugs increased the risk of s-ADRs as high as 12.0-fold (95% confidence interval [CI], 3.42–42.0), and the ratio of liver function, aspartate aminotransferase/alanine aminotransferase, was also significantly related to s-ADRs (odds ratio [OR], 2.78; 95% CI, 1.33–5.81). Taking antibiotics and taking antineoplastics were significant risk factors for s-ADRs, which had ORs of 2.39 (95% CI, 1.13–5.02) and 4.17 (95% CI, 1.09–15.9), respectively. Evidently, s-ADRs have a more demanding impact than ADRs on health outcomes and on the costs of patient hospital care. If the risk factors for s-ADRs can be thoroughly outlined, more effective strategies can be developed to prevent s-ADRs.

Polypharmacy, defined as the use of six or more medications per day<sup>3)</sup> is a well-established risk factor for ADRs,<sup>4)</sup> and recent studies have shown that increasing numbers of drugs taken, and comorbidities, are the major risk factors for ADRs,

rather than advanced age itself.<sup>5,6)</sup> The average number of drugs taken by elderly inpatients in Korea (18.0±13.7), and in elderly outpatients (5.8±5.6)<sup>7)</sup> is relatively higher than that in Western countries (an average of nine drugs for elderly inpatients and three for elderly outpatients in the United States and England). However, considering the lower incidence of ADRs in Korea, the awareness of ADRs and reporting rates of ADRs are low. Because ADRs are only reported voluntarily by clinicians, an easily accessible reporting system is necessary to enhance ADR reporting. An e-sub system was programmed as an integrated part of the electronic medical records in the hospital with the aim of enabling a convenient and immediate response to ADRs. It can be used to alert physicians and nurses to each patient's previous ADR in the hospital. In 2006, the Korean Food and Drug Administration established nationwide regional pharmacovigilance centers (RPVCs) to encourage ADR reporting.<sup>8)</sup> Currently, there are 27 RPVCs in Korea, mostly located in university hospitals.<sup>9)</sup> As the authors suggested, more evolved reporting systems, such as software with electronic prescribing databases, enable efficient detection of ADRs in the elderly.<sup>2)</sup> Ideally, each hospital's e-sub system for ADRs could be standardized and integrated into a national pharmacovigilance center.

## CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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