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Drug Safety

ISSN 0114-5916
Volume 41
Number 3

Drug Saf (2018) 41:321-322
DOI 10.1007/s40264-017-0612-4

Springer

Drug Saf (2018) 41:321–322
https://doi.org/10.1007/s40264-017-0612-4

LETTER TO THE EDITOR

Comment on: "Adverse Drug Reaction-Related Hospitalizations in Elderly Australians: A Prospective Cross-Sectional Study in Two Tasmanian Hospitals"

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Published online: 15 November 2017

We read with interest the recent study by Nair et al. [1] about adverse drug reaction (ADR)-related hospitalizations in elderly Australians.

In this study, which used convenience sampling, all admissions of elderly people to two hospitals in Tasmania, Australia, were evaluated to determine the rate of admissions that might possibly be related to ADRs. The article focused on a major issue in an important population, as drug utilization among the elderly is increasing in Australia [2]. The strengths of the study, as highlighted by the authors, included its prospective design, follow-up of patients through to discharge, and data collection using both patient interviews and medical records.

The authors explained that the patients' interviews were critical in their methodology and that patients who were not interviewed, for various reasons, were actually excluded from the study unless they were interviewed later in the course of their hospitalization. However, the characteristics of the study population in Table 1 showed that 6.8% of patients had dementia in their medical history. In our opinion, the specifics of the data collection processes used with these patients needed more elaboration, and it might have been worth discussing what measures were taken into consideration to improve the accuracy of medication histories taken through interviews with patients admitted with dementia. The implication is that, if interviewing caregivers or family members was considered an acceptable alternative for participants with a history of dementia, excluding other patients because they were unable to be interviewed could be considered less necessary. This might pose potential implications for preventing selection biases.

In this study, the causality of the ADRs was assessed using the Naranjo algorithm. In this algorithm, each positive answer to question items has a + 1 score, except for two questions with + 2 scores and two other questions with − 1 scores. Each negative answer to a question can result in − 1 to + 2 scores. If the answer to a question is "don't know," a 0 score is allocated. ADRs with a total score of 0 or 1–4 are categorized as "doubtful" and "possible," respectively [3]. Interestingly, one of the questions with a + 2 score is whether or not the ADR appeared after the administration of the suspected drug. In fact, if only the initiation of a medicine precedes the initiation of a suspected ADR, the ADR obtains a + 2 score in the Naranjo algorithm. Thus, it can potentially be categorized in the "possible" causality category [4].

In the study by Nair et al. [1] hospitalized patients were primarily evaluated regarding ADR-related admissions based on a consensual decision. The authors noted that patients in the "doubtful" category according to the Naranjo algorithm were excluded from the study. However, it seems that, based on the previous descriptions of the patient evaluation, none of the ADR-related hospital admissions could have been classified as "doubtful" in the first place to be excluded at this step.

This comment refers to the article available at doi:10.1007/s40264-017-0528-z.

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One of the fundamental issues is also the differentiation between cases in which the ADR was one of multiple reasons for hospitalization and cases in which the ADR was the "sole" reason for admission. It seems that the distinction between these two entities was not clearly noted throughout the article. For example, in the Method section, the authors mentioned that the ADR-related hospitalization was determined if "other causes were excluded." So, it is expected that the hospitalizations due to non-ADR-related problems and doubtful cases were excluded from the study. However, in several parts of the article, the authors used the expression "contribution" of ADR to hospitalization. As an example, the Results section includes the statement, "of the 1008 patients examined, ADRs potentially caused or contributed to 191 (18.9%) acute medical admissions." A similar statement was also used in the title of Table 2.

All ADRs, except rash due to furosemide, were classed as type A ADRs. However, some of the ADRs listed in supplementary Table 4 might be classified as type B, C, or D. For example, decreased bone density might be classified as type C and some of the hematological ADRs as type B. A more comprehensive classification system would improve the accuracy of ADR categorization [5].

Lastly, the process of assessing whether a certain drug(s) may have caused or contributed to the admission was mainly based on consensus. Two researchers—one clinical pharmacist researcher and one senior clinical pharmacist—were involved in this process, and a pilot stage used a random selection of 10% of cases. However, it seems more elaboration (and possibly some statistics) on the degree of inter-rater agreement between the two pharmacists may have been necessary, especially regarding the blind and independent assessment. The ways in which the inter-rater agreements were sought or reflected in the final consensus could be explained to address the superiority of Naranjo algorithm over subjective clinical judgment [6]. Additionally, it will address the choice of only one causality assignment algorithm instead of two to check agreement between the two different algorithms [7].

Compliance with Ethical Standards

Funding No sources of funding were used to assist in the preparation of this letter.

Conflicts of interest Mona Kargar, Alireza Ahmadvand and Kheirollah Gholami have no conflicts of interest that are directly relevant to the content of this letter.

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