Received: 29 October 2017 | Accepted: 30 October 2017

DOI: 10.1111/jep.12853

WILEY Journal of Evaluation in Clinical Practice
International Journal of Public Health Policy and Health Services Research

LETTER TO THE EDITOR

Comments on "Strategies for reduction in the duration of intravenous drug use: Interest of drug tracers as quality indicators to improve intravenous to oral switch"

To the editor,

We read with interest, the recent study by Corny et al, in which the authors evaluated the changes of intravenous (IV) to oral (PO) conversion practice in a hospital following sequential interventions during a 5-year period.[1] The interventions were mainly focused on IV to PO conversion of acetaminophen and proton-pump inhibitors (PPIs), and the conversion practice was evaluated assuming the abovementioned medications as "tracers." The authors concluded that both medications could be considered as tracers of IV/PO switching practices in the hospital, with respect to the observed correlation between IV/PO ratios for acetaminophen and PPIs and ratios for all drugs. We found the topic of the study and its results important; however, there are a few challenges that we thought need more elaboration, specifically about the robustness of the study's methodologies, and the interpretation of its results.

There are a couple of medications that could be considered as targets of IV/PO switching interventions because of their good bioavailability in either route of administration.[2] In addition to bioavailability, the frequency of use and the costs of IV forms in the study setting should be considered in the selection of target drugs. To clarify the relevance of chosen drug tracers in this study, describing the share of the consumption of these drugs out of the total drug consumption in the hospital would be important. However, no data was provided in this regard.

Moreover, the rationale behind selection of PPIs as one of the drug tracers was not clearly described in this paper. Pantoprazole is used frequently in the hospitals, and its IV dosage form has considerably higher price ranges than PO form.[3] The bioavailability of IV and PO forms of pantoprazole are also relatively equivalent. However, the recommended route of administration of PPIs for the management of non-variceal upper gastrointestinal (GI) bleeding is IV.[4] Therefore, switching to PO forms could not be expected for this main use of IV PPIs, and the underestimation of switching might have been occurred in the study results. The authors mentioned probable use of IV PPIs for GI bleeding as the reason behind weaker correlation of PPIs IV/Po ratios with global ratios. The question that arises here which needs explanation is that why other suitable drugs were not chosen instead of pantoprazole or the PPIs.

In drug consumption studies, employing standard classifications and units of measurement is a recommended practice.[5] In this study, the amount of IV and PO acetaminophen and PPIs' consumed was calculated using determined doses for each medication and based on extracted consumption data. In our viewpoint, it could have been more precise if the amount of IV and PO doses had been calculated using internationally recommended units of measurement, specifically the defined daily dose proposed and promoted by the World Health Organization (WHO ATC/DDD). Additionally, we noticed ambiguity around the calculation of global ratios, as it seemed that the ratio of IV to PO form for other medications was calculated without considering equivalencies and determining standard doses. In addition, it was unclear whether the authors had excluded medications that were available only in PO or IV dosage forms.

We think, to provide a more accurate and comprehensive picture of changes that have occurred in IV/PO switching practices, describing the consumption of IV and PO forms, separately at first, would be a prerequisite. Another point is about the robustness of graphical representation of the ratio trends in correlation assessment. Making conclusions about the correlation between the tracers' and global ratio trends without performing relevant statistical analyses for checking the significance of the observed correlations might be considered less than suitable. As another statistical viewpoint, it is appropriate to imagine that IV/PO ratios do not follow a normal distribution, and therefore, converting the ratios using logarithm scales (for example, to natural logarithm or Ln[ratio]) might be a more appropriate approach to deal with non-normally distributed values.

FUNDING

None.

CONFLICT OF INTEREST

None declared.

ETHICAL APPROVAL

Not required.

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