Reviewer’s report

Title: The expenditure of time using clinical decision support systems in chronic pain therapy

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Reviewer: Dan Benhamou

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Comments for authors

This is an interesting research as the question of polypharmacy is a real one and has been shown to be associated with an increase in morbidity, healthcare consumption and cost. In the specific chronic pain area, the question is also highly relevant and patients are often old and receive several pain relieving drugs which can interact one with the other but also with other drugs prescribed for other comorbidities. Finding a tool, especially an electronic one, which may be useful and fast to operate is a useful goal. The main results suggest that the three systems are helpful and can be used safely and easily but the CDSS AU was able to detect a larger number of interactions and the AID was the best compromise (when all factors are taken into account). It is unclear however if this could translate into a benefit in the patients’ care.

Although the study is interesting, several concerns should be highlighted. Importantly, most of the reviewer’s concerns are already discussed by the authors themselves, showing that the authors are well aware of their study limitations. Unfortunately, these limitations remain and reduce the usefulness of the study. As discussed below, the reviewer believes that a complementary evaluation and comparison of what pain physicians think about the three systems would be useful. A short questionnaire would probably be enough to highlight values and problems with each system.

The authors used three CDSS available in Germany but it is unclear if other tools are available in this country. Why were these three tools chosen?

Also, it is mainly a descriptive study and objective comparisons are very limited. Time was the major criterion used and comparison of other variables is presented in the Discussion section with very few comments. Because some of the variables discussed are rather qualitative, comparison of physicians’ evaluation would have been useful by questioning which of the three systems they would prefer or by asking them to rate the main valuable advantages of each system…. The reviewer believes that the article usefulness would significantly increase if an additional qualitative evaluation is added.

Also interpretation of data is limited. For example, is it better to detect a larger number of interactions or can this be harmful or at least helpless? A discussion between experts to determine if a DDI detected by one of the three CDSS but not by the others would improve medical decision or not.
It does not seem that the authors made any analysis of the intrinsic quality of each of the three CDSS used. An in-depth recording of all possible interactions through a specific research made by the investigators could have been the basis for comparison of the validity of each of the three tested CDSS. The study only evaluated if these CDSS “worked” and how much time it takes to use them. It was a pragmatic study but there was no verification that the CDSS were high-quality tools.

Cross analysis of the DDI results obtained with each of the three tools has not been performed. For example in Table 3, the AU CDSS displays a drug interaction between tramadol and pregabalin while this interaction is not described in any of the two other CDSS. As well, the amitriptyline-tramadol interaction is highlighted in the AU CDSS and also in the AID CDSS but not in the third one. This suggests that they are not interchangeable and it would be useful to see if one is better than the others. Time expenditure is certainly one factor but clearly not the only one to decide if this DDI search strategy is useful or not and to choose the best CDSS. It would also be useful to cross check the severity of expected reactions among CDSS and see if severity is consistently described and/or if one of these systems.

Propanolol was not recognized by the Medscape CDSS as the real drug name is propranolol. Similar minor errors in writing were observed for other drugs and the internal search engine was unable to correct them. Interestingly this suggests that the drug name library in this system cannot compensate even minimal for errors in writing.

Additionally, we are not told if the CDSS used are updated in a regular basis. There are many wrongly written drug names in Table 3 (pantoprazole, amitriptyline, oxycodone…). This should be reviewed in depth and corrected.