Reviewer's report

Title: Drug related problems in type 2 diabetes patients with hypertension

Version: 3 Date: 21 September 2012

Reviewer: Hege S Blix

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I recommend Major Compulsory Revisions

This paper addresses an important patient group. Correct drug management of these patients are vital and will have impact on morbidity and mortality as well as health costs for the society. The issue of appropriate drug use is therefore sound to address and the study aim is interesting.

The main aim is to investigate DRPs with the two objectives: to assess the DRPs and to identify factors that could affect DRPs.

General comment.

The article is too long and the results are too detailed. Many of the results are not interesting in light of your aims e.g. the ethnicity, under groups of BMI, naming all comorbidities etc.

You have too many tables and figures. I understand and agree that much of the information you give is interesting, however, do not let the reader get tired and over whelmed with information on parameters that you do not use further. You should concentrate on the results according to the aim of your study.

Methods

A retrospective method was used, and you have provided a flow chart (fig 1, see also comment below). This information should be mentioned earlier (e.g. under study population) than under statistical techniques, either as a text, or refer to it as fig 1. You then screened medical records to patients with T2DM and included those with hypertension as well.

Exclusion criteria - Patient with missing data was excluded. What does this mean? Does this imply that all the required data had to be found in the records for the inclusion in the study? E.g. if data on liver status was not included in the record, the patient would have been excluded?

Furthermore, it should be stated by whom the data was collected. Probably the data collectors are pharmacists since the authors are pharmacists.

You should also describe the hospital better. I would have expected your patients to be older and also I would have thought that in a 948 beds hospital much more than 200 patients with T2DM and hypertension would be admitted during a 2 years period. The prevalence of hospitalised patients with hypertension and T2DM in a medical ward my country is around 15-20%, which mean that in a 1000 bed hospital I would expect to collect 150- 200 patients at a much shorter
period than 2 year?
Renal impairment – firstly; how was creatinine clearance calculated? Secondly; a creatinine clearance less than 50, but higher than 35 does not necessarily mean that you have any problem with drug use. I would suggest that you change the definition.

Drug interactions – you have not defined which drug interactions to include. You say later that you on included significant potential interactions, but it should be described in methods as well.

Combination of drugs was counted as a single item, except for antidiabetic and antihypertensive drugs. I did not understand this properly – so you should explain it better. Does this mean that if you have a combination drug containing a thiazide + an ACE-inhibitor it was counted as two drugs?

The identification of DRPs. As I understand it you have used Lexicomp, BNF and Beers criteria to identify DRPs and then classified then according to the PCNE classification. It should be mentioned who identified the DRPs, that is if there were several persons involved and whether it was pharmacists or physician involved in the identification and classification. Since you do this retrospectively you have the possibility to use two independent researchers to assess each patient record and by doing that controlling that the identification and classification of DRPs are correct. It is a problem that the identification is done retrospectively. The DRPs you identify will be theoretical and what you assess as a DRP could have been prescribed intentionally and fitted to the patient. You have only briefly mentioned this under limitation, however, you should extend the discussion here.

The Beers criteria - Drugs listed on Beers List are drugs used in the US and drugs used in the elderly population. How does this fit with the drugs used in Malaysia? You only used the criteria on those younger than 65 (less than half of your patients) Do you think this will be a bias for your results? You should discuss these two comments in the discussion.

Result
I recommend to not have sub-headings

Demographics – see comment with regard to the number and the time of collection. Further, I would expected the majority of patients to be older – could you comment on that in discussion?

Drug use pattern – why do you include this? This is not your aim. I suggest you delete this paart – consequently also fig 2, 3. And table 6 and 7. See also below.

Adverse effects – one problem with your data is that this is retrospective hospital data. They have probably not asked patients for adverse effect, but only noted the ones that are important for the hospital admission. Could you address this limitation further in discussion?

Factors found to be associated with DRPs – do you mean cardiovascular disease or cardiovascular event (as defined in methods)? (I would include hypertension in cardiovascular disease, but not in event). This comment applies to table 17 A
Discussion
See several comments above
Renal impairment – See comments under methods. I do not agree that a patient with a creatinine clearance just below 50 ml/min has an impairment important for the use of most drugs. I think most pharmacologists would agree that below 30-35 ml/min would be a better limit.
Cardiovascular disease – see comments above under results
The paragraph regarding limitations of the study should be extended, see comments above.

Figures and tables
Fig 1 - The flow sheet is OK, but you could also describe it in the method section. (I would prefer that)
Table 1 - Not necessary, you define that you use the version 5.01 version. It is enough.
Table 2-3 should be merged - Is too large, many of the parameters are too detailed and should be lumped together. Furthermore, I would suggest only including the information you use further in the study. You could, if you want to include it, mention it briefly in the text. For example, you do not use the under groups of BMI and why is it necessary to inform about ethnicity?
Table 4 and 5 - Should instead be included as text in the result.
Table 6 and 7 – Delete – drug use pattern is not your aim
Table 8, 9, 10, 12, 13 and 14 – Merge into one table
Table 11 Not necessary
Table 16 – could be included in text as a short comment
Figure 2-7 Not necessary, could be shortly commented in text.

Level of interest: An article of limited interest

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:
'I declare that I have no competing interests'