Reviewer's report

Title: Persistence on prostaglandin ocular hypotensive therapy: an assessment using medication possession and days covered on therapy

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Reviewer: Deepak Edward

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The study by Reardon and colleagues describes comparison of prostaglandin therapy persistence by analyzing data from a database.

Studies well-written and certain points need to be addressed is further strengthen the quality of the study

Comments

1. It is important that the authors provide a definition for persistence this section introduction

2. Medication possession, days covered and persistence with the PG therapy is well analyzed. But mere possession of the drug or adequate day’s supply does not provide any information about the drug-compliance. A patient may not always use a medication in possession. How is this weakness addressed? This should be addressed in the discussion

Moreover, medication possession was slightly higher with bimatoprost, but latanoprost had the highest number of days covered (as stated on page 10, 2nd and 3rd paragraph). This difference and possible cause should be discussed.

3. Was there any bias by induced by the study by the nature of the people enrolled in this database? Such as access to drug; co-pay levels and other possible issues related to drug access or purchase?

4. What percentage of people with glaucoma United States does this database represent?

5. Is there a way to confirm it all patients received one bottle at each time they refilled their medication? If not, these potential areas of weakness should be addressed in the discussion.

7. Medication possession was defined as…….”follow-up period had sufficient days supply to have medication on”. How does one define sufficient days?

8. The patient inclusion criteria included patients less than 40 years of age at the index date. What was the rationale? How patients were excluded because of this criterion?

9. The authors report a statistical difference between the mean age of the patients. This one you differences probably not clinically relevant. If it is, the authors need to provide the explanation and discussion.

10. The authors report” A substantially larger proportion of latanoprost users
(44%) had an “ocular hypertension” diagnosis during the 180-day preindex period followed by users of travoprost (39%) and then bimatoprost (36%; p < 0.001).

What about the rest of the patients? What was the diagnosis? What was the significance of making this distinction?

11. “Medication possession varied significantly (p < 0.001) by therapy. Medication possession was equivalent or slightly higher for bimatoprost compared to Travoprost. However, medication possession ranged from seven to nine percentage points higher for latanoprost than for the next highest agent across days supply imputations”. What other potential causes? Should be discussed

12. What could be potential causes of early failure? Side effects? Availability of samples?

13. Which group had the greatest numbers of early failures? This data needs to be presented and potential causes discussed

14 Methods: Could you please clarify if patients who had previous glaucoma surgery were included or excluded from the study?

15. Discussion (3rd line). The authors state that the 1-year persistence is less optimal in patients new to prostaglandin therapy. Do they mean to say that the persistence is better in chronic patients who are already on the medication since long? If so, what are the reasons the authors think might be influencing the lower persistence in new patients and higher persistence in patients on chronic therapy.

**Level of interest**: An article whose findings are important to those with closely related research interests

**Quality of written English**: Acceptable

**Statistical review**: Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests**: 

'I declare that I have no competing interests'