Editorial Office Notes

RES-16-681

REPLY to Correspondence RES-16-633

To the Authors:

We would like to thank Dr. Veeranki for the thoughtful comments regarding our study.[1] Dr. Veeranki rightly points out that studies utilizing administrative claims have limitations. We agree with this point and realize that the importance of studies utilizing claims data is to identify potential problems which require a more stringent study design to investigate.

Regarding the insignificant association between metformin use and asthma related emergency department visits, a potential explanation is that the airway inflammation reduction effect of metformin works better on more severe asthma patients. In addition, there are potential other factors that may influence the decision of patients to be hospitalized or treated in emergency room and then sent home. These factors that can include personal decisions, procedural variables, and admission rules[2] may not be fully identified from the administrative claims data. A further investigation is warranted.

The study conducted by Hitchings et al. showed that metformin was associated with a survival benefit among patient with concurrent COPD and diabetes.[3] We conducted a new analysis to include patients with COPD. Similar to our main finding and study results reported by Hitchings et al., we found metformin users were significantly associated with a lower risk of asthma related hospitalization (ORs = 0.16, 95% CI: 0.06-0.42) but not for asthma related emergency department visits (ORs = 0.57, 95% CI: 0.28-1.12) or asthma exacerbation (ORs = 0.68, 95% CI: 0.46-1.02) in the new analysis. We suggested clinicians to be aware of the benefits of metformin in reducing airway inflammation.

Regarding the concern of the three-year follow-up period, we intended to investigate the long-term effect of metformin use on airway inflammation. Both asthma and diabetes are chronic diseases. Due to the length of our data (an 11 years administrative claims dataset), we were able to use a three-year follow-up period to conduct the study.

In the end, we appreciate the comments made by Dr. Veeranki and hope our responses

provide further clarification of our work. We look forward to further research to demonstrate whether metformin use by people with asthma leads to an improved symptom control. There appears to be justification for considering the notion that metformin may have a beneficial effect on the airway inflammation. Clinical trial work that utilizes clinical outcomes as well as health services research work that includes a broader set of predictors known to be associated with treatment decisions related to emergency room visits and hospitalization are warranted.

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2 Adams RJ, Smith BJ, Ruffin RE. Factors associated with hospital admissions and repeat emergency department visits for adults with asthma. Thorax. 2000; **55**: 566-73.
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