Association of statin therapy with diabetic complications

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BACKGROUND

Data regarding acute and chronic diabetic complications with chronic statin use is very limited, especially among Asian population. Hence, we investigated diabetic progression in diabetic patients receiving statin therapy by evaluating the association with acute and chronic diabetic complications.

METHODS

This retrospective cohort study included patients aged 40 years or older diagnosed with type-2 diabetes mellitus in Hong Kong between January 1st, 2009 and December 31st, 2009 and followed up till December 31st, 2019. Patients were divided into statin users and non-users. Propensity score matching (PSM) using the nearest neighbor search strategy was performed based on demographics, prior comorbidities, and medications. The study outcomes were new-onset Diabetic Ketoacidosis/ Hyperosmolar Hyperglycemic State (DKA/HHS), new diabetic ophthalmological, neurological, and renal complications.

RESULTS

After 1:1 PSM, the study cohort consisted of 3,247 statin users (48.6% male, age 65.03±11.99 years, mean follow-up 5.68±2.39 years) and 3,247 (50.5% male, age 63.20±12.15 years, mean follow-up 5.78±2.34 years) matched statin non-users. Cox proportional hazards model analyses showed that statin therapy was associated with an overall higher risk of new diabetic renal complications (HR: 1.44, [1.21-1.71], p<0.001), new diabetic ophthalmological complications (HR: 1.44, [1.19-1.73], p<0.001), and new diabetic neurological complications (HR: 1.47, [1.09-1.96], p<0.01), although it was not associated with a higher risk of DKA/HHS (HR: 1.31, [95% CI, 0.89-1.94], p=0.167). However, the associations for ophthalmological and neurological complications were not significant upon excluding patients with previous coronary heart disease.

CONCLUSION

Among patients diagnosed with type 2 diabetes, use of statins was associated with higher risk of developing chronic diabetic complications after propensity score matching with multiple adjustments.

Statin therapy might be associated with **chronic diabetic complications**

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FIGURE 1

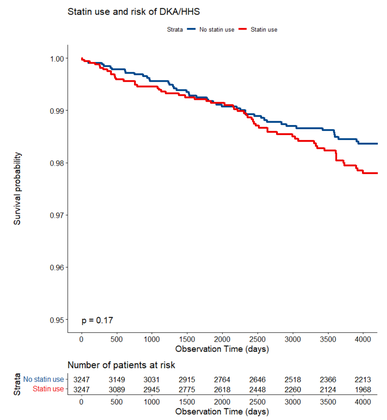

FIGURE 2

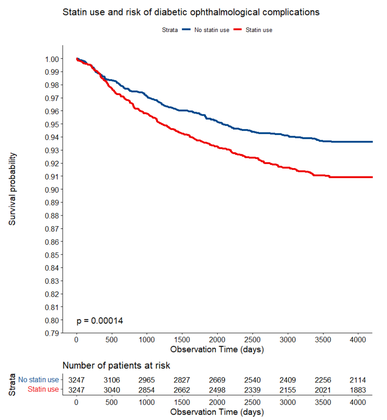

FIGURE 3

FIGURE 4

DISCUSSION

Our findings suggest that physicians should be cautious about the potential risk of statin-mediated chronic diabetic complications. To maintain the cardiovascular benefit while minimizing the potentially harmful diabetogenic effect of statins, a multi-pronged approach should be considered including closer glycemic monitoring, control of pre-disposing factors to diabetic complications, careful selection of the statins and concomitant medications. Furthermore, risk stratification for diabetic complications prior to statin initiation would be beneficial for early diagnosis and better prognosis among diabetic patients on statin therapy. Additionally, encouragement of healthy eating habits, physical activity, body weight control, and smoking cessation may be effective in preventing statin-induced diabetogenicity.

DISCLOSURE INFORMATION

None