

# Statin use is linked to increased risk of developing diabetes, warn researchers

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Treatment with high potency statins (especially atorvastatin and simvastatin) may increase the risk of developing diabetes, suggests a paper published today in *BMJ*.

Statins are among the most widely prescribed medications for the prevention of [cardiovascular events](#). Although tolerated well, an association with new-onset diabetes has recently been suggested. One trial suggested a 27% increased risk of diabetes with rosuvastatin whereas another suggested patients taking pravastatin benefitted from a 30% lower risk.

As there is limited data on this subject, researchers from Canada carried out a population-based study on 1.5 million residents in Ontario, Canada to examine the association between individual statin use and new-onset diabetes.

All patients were aged 66 and over and started statin therapy between 1997 and 2010. The [median age](#) was 73 years. Follow up ended either at the end of 2010 or a maximum of five years following the initiation of statins, whichever came first. The primary outcome was incident diabetes.

Data were taken from the Ontario Drug Benefit database, the Canadian Institute for [Health Information](#) Discharge Abstract Database and the Ontario Diabetes Database. Statins included in the study were: fluvastatin, [lovastatin](#), pravastatin, simvastatin, atorvastatin and

rosuvastatin.

All studies used pravastatin-treated patients as the comparison group as this has been shown to have favourable effects on newly diagnosed diabetes in animal models and clinical trials.

471,250 patients were identified with no history of diabetes and who were newly treated with a statin. 54% were women. Atorvastatin accounted for more than half of all new statin prescriptions followed by rosuvastatin, simvastatin, pravastatin, lovastatin and fluvastatin.

The overall risk of developing diabetes was low but this risk was increased among some patients taking statins. Between 162 and 407 patients would have to be treated with the various statins for one extra patient to develop diabetes. Patients treated with atorvastatin were found to have a 22% increased risk of new-onset diabetes, rosuvastatin an 18% increased risk and simvastatin a 10% increased risk, relative to pravastatin. In contrast, patients treated with fluvastatin were at a 5% decreased risk and lovastatin a 1% decreased risk.

The event rate was highest for atorvastatin (30 outcomes per 1000 person-years) and [rosuvastatin](#) (34 per 1000 person-years). Simvastatin accounted for 26 outcomes per 1000 person-years with both fluvastatin and lovastatin at 21 outcomes per 1000 person-years.

The researchers found consistent results in analyses examining the use of statins for primary prevention (when those without established disease are treated) and secondary prevention (when those with established disease are treated). Their findings also suggest that older patients are at an increased risk regardless of dose for [atorvastatin](#) and [simvastatin](#) or whether therapy is used for primary or secondary prevention.

The researchers say several factors may explain the increased risk of

new-onset diabetes among patients receiving certain statins including impaired insulin secretion and inhibited insulin release.

In conclusion, the researchers say clinicians should consider risk when contemplating statin therapy. They add that "preferential use of pravastatin, and potentially fluvastatin [...] may be warranted" and that [pravastatin](#) may even be beneficial to patients at high risk of diabetes.

In an accompanying editorial, doctors from the University of Turku in Finland say that "the overall benefit of statins still clearly outweighs the potential risk of incident [diabetes](#)". They conclude that as statins have been shown to reduce cardiovascular events in patients, they "play an important role in treatment".

**More information:** Risk of incident diabetes among patients treated with statins: population based study, *BMJ*, 2013.

Editorial: Statins and the risk of developing diabetes, *BMJ*, 2013.

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