

# **New study reveals association between diuretic drug use in type 2 diabetes and risk of lower limb amputation**

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New research presented at this year's annual meeting of the European Association for the Study of Diabetes (EASD) in Berlin, Germany,

reveals that the use of diuretic drugs in individuals with type 2 diabetes (T2D) is associated with a significantly increased risk of serious problems in their lower limbs which can lead to amputation.

The research was conducted by Dr. Louis Potier, Department of Diabetology, Endocrinology and Nutrition, Bichat Hospital, Assistance Publique—Hôpitaux de Paris, Paris, France, and colleagues. The aim of the study was to analyse the association between diuretic use and the risk of what are known as lower limb events (LLE) in patients with T2D. These events include lower extremity amputations (LEA), and lower limb revascularisations (LLR) such as angioplasty or the bypassing of blocked or damaged blood vessels to prevent amputations.

Recently, it has been observed that individuals with T2D who take canagliflozin, a member of a relatively new type of diabetes drug called an SGLT2 inhibitor, to reduce their blood glucose are at an increased risk of undergoing limb amputations. The authors suggest that this side effect may be caused by drug-induced hypovolaemia (decreased blood volume), and that if this is the case, then diuretics should also increase [amputation](#) risk as they have a similar effect.

The team drew their data from SURDIAGENE; a French observational cohort which includes T2D patients enrolled from 2002 until 2012. Participating subjects were followed up until whichever came first out of the onset of LLE, death, or 31 December 2015. There were 1459 studied participants of whom 670 were taking diuretics. During a follow-up period which averaged 7 years, LLE occurred in 85 (13%) of diuretic users and 57 (7%) of non-users.

To better account for difference in characteristics of patients taking or not diuretics, the authors used a propensity score matching approach by matching each patient using diuretics to a comparable non-user patient. Among the 1074 patients included in the matched cohort, those using

diuretics had an almost doubled risk (75% higher) of LLE than non-users. These data were analysed further and revealed that there was a large increase in the risk of LEA (2.3 times greater in diuretic users than non-users), and while LLR showed a small increase (1.3 times greater in users), this result was not statistically significant.

The authors conclude: "Among patients with type 2 diabetes treated with diuretics, there was a significant and independent increase in the risk of lower limb events, coming predominantly from a rise in lower extremity amputations. Diuretics should be used cautiously in [patients](#) with type 2 diabetes at risk of amputations."

They add: "Further studies are needed to explore the role of drug-induced hypovolaemia in the association between the use of diuretics and LLE. The hypovolaemia hypothesis could provide an explanation for the increased risk of LEA observed with SGLT2 inhibitors."

Provided by Diabetologia

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