Blood pressure management should be *pari passu* in people living with and without type 2 diabetes

While the benefits of blood pressure reduction in diabetes are well established, a number of factors must be considered when managing hypertension in type 2 diabetes. Controversy exists over optimal blood pressure targets, and guidance differs. This large meta-analysis investigated the effects of blood pressure-lowering treatment on the risk of major cardiovascular events by type 2 diabetes status and by baseline levels of systolic blood pressure. A 5 mmHg reduction in systolic blood pressure decreased the risk of a major cardiovascular event in people with and without type 2 diabetes, although the effect was weaker in those with type 2 diabetes. Absolute cardiovascular risk reductions did not significantly differ between groups. No evidence of differences in treatment effects by baseline systolic blood pressure between people with and without type 2 diabetes was found. The authors concluded that different blood pressure targets for people with and without type 2 diabetes is not warranted.

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Hypertension as a comorbidity augments the risk of cardiovascular (CV) mortality and morbidity in people living with type 2 diabetes (Mancia, 2005). Therefore, appropriate management of hypertension is pivotal in reducing the risk of major macrovascular and microvascular complications of type 2 diabetes, as well as mortality.

The UKPDS demonstrated that reducing blood pressure (BP) from 160/94 to 144/82 mmHg (median BP achieved) compared with 154/87 mmHg (median achieved in the control arm) over 8.4 years of follow-up reduced the risk of microvascular disease, stroke and deaths related to diabetes (UK Prospective Diabetes Study Group, 1998). The benefits of BP reduction in diabetes have been demonstrated in several other high-quality studies, including ALLHAT (Barzilay et al, 2004) and ASCOT (Dahlöf et al, 2005). Additionally, a multifactorial approach towards control of hypertension and hyperglycaemia has been shown to reduce both macrovascular and microvascular complications in several studies, including the STENO-2 trial (Gaede et al, 2008).

Management of type 2 diabetes complicated by hypertension should be individualised; one size does not fit all. Factors such as functional status and frailty, comorbidities (especially CV disease and chronic kidney disease [CKD]) and duration of diabetes must be taken into consideration. However, there remains considerable debate about optimal BP targets or target ranges for those living with diabetes, with several conflicting guidelines worldwide.

In NG136, NICE (2022) recommends the initiation of antihypertensive therapy alongside lifestyle intervention if the clinic BP is ≥140/90 mmHg (equivalent to a home BP monitoring or ambulatory BP monitoring daytime average of ≥135/85 mmHg). Target BP should be <140/90 mmHg in those <80 years or, if coexisting CKD, <130/80 mmHg.

Similarly, ESC/ESH guidance recommends antihypertensive drug treatment when clinic BP is >140/90 mmHg (Williams et al, 2018). The systolic BP goal should be 130 mmHg and <130 mmHg if tolerated, but not <120 mmHg. Diastolic BP should be targeted to <80 mmHg, but not <70 mmHg.

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"A unified approach to the management of hypertension in people with and without type 2 diabetes will help streamline the management of blood pressure and help reduce the morbidity and mortality associated with hypertension."

This recently published large (>350 000 participants), individual participant-level data meta-analysis aimed to investigate the impact of BP-lowering treatment on the risk of major CV events by type 2 diabetes status and by baseline levels of systolic BP (Narzarzadeh et al, 2022). Nearly a third of participants had known type 2 diabetes at baseline.

An individual participant data meta-analysis uses the raw individual-level study data for subsequent analysis (e.g. pre-treatment BP for an individual), rather than an aggregate data approach (data that is averaged or estimated across all individuals in a study, such as mean treatment effect on BP). The use of individual participant data has several statistical and clinical advantages, including increased reliability.

The primary endpoint was the treatment effect per 5 mmHg reduction in systolic BP on the risk of developing a major CV event (first occurrence of a fatal or non-fatal stroke or cerebrovascular disease, fatal or non-fatal ischaemic heart disease, or heart failure causing death or hospitalisation).

Over 4.2 years median follow-up, a 5 mmHg reduction in systolic BP decreased the risk of major CV events both in people living with and without type 2 diabetes, but with a weaker relative treatment effect in those with type 2 diabetes (6% vs 11% relative risk reduction in CV risk). However, absolute CV risk reductions did not significantly differ between groups given the higher absolute CV risk of people living with type 2 diabetes and associated higher event rates.

Notably, there was no evidence of differences in treatment effect by baseline systolic BP between people with and without type 2 diabetes. There was also no difference in treatment effect with any of the drug classes used both in people with and without type 2 diabetes.

In view of these findings, the authors concluded that it is not necessary to set different systolic BP targets or give specific treatment recommendations for people living with type 2 diabetes and hypertension.

Given the increasing workload in primary care and conflicting BP guidelines, a unified approach to the management of hypertension in people with and without type 2 diabetes will help streamline the management of blood pressure and help reduce the morbidity and mortality associated with hypertension. ■

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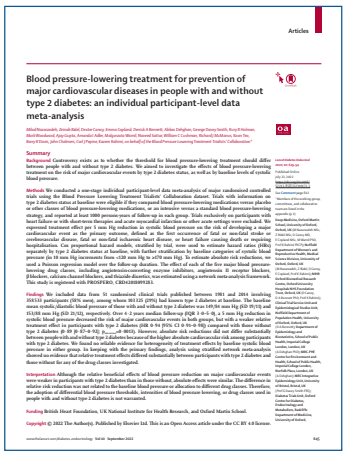
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Blood pressure-lowering treatment for prevention of major cardiovascular diseases in people with and without type 2 diabetes: an individual participant-level data meta-analysis

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