Reducing risk in type 2 diabetes
FREQUENTLY ASKED QUESTIONS ABOUT USE OF ACE INHIBITORS IN PATIENTS WITH DIABETES

These responses are based on a brief review of the literature and the document has NOT been subject to expert review. It is not intended to be a comprehensive review on the topic. Feel free to contact Nighat Faruqi (nfaruqi@nps.org.au) with any additional information on the questions raised, if you disagree with the answers given or if you would like an issue expert reviewed so that it can be distributed.

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1. ACE inhibitors for all patients with diabetes?

a. “I am just trying to treat hypertension”
If the patient has diabetes and hypertension and no other problems, ACE inhibitors are as good as other commonly used antihypertensive classes at (i) lowering blood pressure and (ii) improving cardiovascular outcomes.\(^1\)

The most important thing is to lower the BP.

b. “My patient has microalbuminuria as well as hypertension”
ACE inhibitors slow the progression of diabetic nephropathy.\(^2\)

This renoprotective effect is thought to be independent of their blood-pressure lowering effect.

An ACE inhibitor is therefore recommended first-line in this group of patients.\(^3\)

c. “My patient has microalbuminuria but normal blood pressure”

The HOPE study micro-HOPE substudy demonstrated that ACE inhibitors can improve cardiovascular outcomes in patients with diabetes and microalbuminuria, even in the absence of hypertension.\(^4,^5\)

For this reason, the guidelines state that on encountering this scenario, clinicians should consider prescribing an ACE inhibitor.\(^6,^7\)

d. “My patient has a normal blood pressure and no microalbuminuria, but has a high cholesterol level”
The inclusion criteria for the HOPE study tried to capture those at highest cardiovascular risk. Patients over the age of 55 were recruited if they had either a past history of cardiovascular disease and/or diabetes, plus one other risk factor,
which included dyslipidaemia, smoking as well as microalbuminuria. The study went on to show a benefit with the use of ramipril for these groups of people.\textsuperscript{4,5} It may be argued from this study that patients may benefit from being prescribed an ACE inhibitor even in the absence of both hypertension or albuminuria, if they are over the age of 55 and have one or more other cardiovascular risk factors.

\textbf{Until further multicentre studies that confirm these findings are carried out, however, it cannot become a firm recommendation.}\textsuperscript{6}

e. "I wish to prevent the onset of microalbuminuria in my patient with diabetes"

\textbf{ACE inhibition may prevent early onset of microalbuminuria but further studies incorporating long-term renal function data are required.}

There have been a handful of studies that have looked at delay of progression to albuminuria in patients with diabetes. For instance, a study by Ravi et al (1998) found a modest but statistically significant renal protective effect of ACE inhibition in a low-risk group of normotensive, normoalbuminuric patients with type 2 diabetes. The authors state, however, that these results should not be interpreted as advocating the introduction of ACE inhibition for the prophylaxis of nephropathy upon diagnosis of diabetes, and that long-term studies are needed to find out whether the observed effect would persist and retard the development of overt diabetic nephropathy.\textsuperscript{8} A more recent study by Ruggenenti et al (2004) demonstrated that in subjects with type 2 diabetes and hypertension but with normoalbuminuria, the use of an ACE inhibitor plus a non dihydropyridine CCB and an ACE inhibitor alone decreased the incidence of microalbuminuria to a similar extent over a follow-up period of a median of 3.6 years.\textsuperscript{9} A post hoc analysis of the HOPE study found a lower incidence of overt nephropathy in subjects with type 2 diabetes who received ACE inhibitor therapy than in controls.\textsuperscript{5} This study was not designed to assess the incidence of microalbuminuria, however, because patients with microalbuminuria were included in the study itself.

2. A class effect or a drug effect?

\textbf{There is no evidence that any specific ACE inhibitor offers any advantage over the class effect.}

It is not clear whether the effects noted in studies that used a particular drug can be attributed to specific effects of the drug itself or to the general properties of the drug class (so that any drugs in that class may be used for the same purpose). Individual drug indications listed in AMH merely reflect particular study results\textsuperscript{10}.
References


