Secondary prevention of ischaemic cardiac events

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Other drugs

ACE inhibitors

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Summary

Mortality

Compared with placebo ACE inhibitors reduce mortality compared with placebo in people with impaired left ventricular function (moderate-quality evidence).

Cardiovascular events

Compared with placebo ACE inhibitors reduce cardiovascular events compared with placebo at 4–5 years in people with normal left ventricular function (moderate-quality evidence).

ACE inhibitors plus angiotensin receptor blockers compared with ACE inhibitors alone Combined treatment with ACE inhibitors plus angiotensin receptor blockers may reduce cardiovascular events compared with ACE inhibitors alone in people with heart failure (low-quality evidence).

For GRADE evaluation of interventions for secondary prevention of ischaemic cardiac events, see table.

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Benefits

ACE inhibitors in people with normal left ventricular function or no heart failure:

We found no systematic review but found two RCTs that assessed the effect of ACE inhibitors on cardiovascular events in people without ventricular dysfunction or heart failure. [24] [25] The first RCT (9297 people at high risk of cardiovascular events owing to pre-existing vascular disease or diabetes plus at least 1 other cardiovascular risk factor) found that ramipril 10 mg daily reduced the composite primary outcome of cardiovascular death, MI, or stroke compared with placebo over an average of 4.7 years (RR for composite outcome 0.78, 95% CI 0.70 to 0.86; NNT 27, 95% CI 20 to 45; RR for cardiovascular death 0.74, 95% CI 0.64 to 0.87; NNT 50, CI not reported; RR for MI 0.80, 95% CI 0.70 to 0.90; NNT 42, CI not reported; RR for stroke 0.68, 95% CI 0.56 to 0.84; NNT 67, CI not reported; RR for death from all causes 0.84, 95% CI 0.75 to 0.95; NNT 56, CI not reported). [24] It also found that ramipril reduced the need for revascularisation procedures (RR 0.85, CI not reported) and reduced events related to heart failure (RR 0.77, CI not reported). [24] The second RCT (12 218 people with coronary artery disease, 4 years' follow up) found that perindopril 8 mg daily reduced the composite outcome of cardiovascular death, MI, or cardiac arrest compared with placebo (8% with perindopril *v* 10% with placebo, RRR 20%, 95% CI 9% to 29%; P = 0.0003), and that these benefits were seen in all defined subgroups. [25]

ACE inhibitors in people with left ventricular dysfunction:

We found two systematic reviews. [22] [26] The first review (search date not reported, 3 RCTs, 5966 people with recent MI and heart failure or left ventricular ejection fraction < 35–40%) [26] compared ACE inhibitors (captopril, ramipril, or trandolapril) versus placebo started 3–16 days after acute MI and continued for 15–42 months. ACE inhibitors significantly reduced mortality compared with placebo (702/2995 [23.4%] with ACE inhibitors *v* 866/2971 [29.1%] with placebo; OR 0.74, 95% CI 0.66 to 0.83; NNT 17 people treated for about 2 years to prevent 1 death, CI not reported), admission to hospital for congestive heart failure (355/2995 [11.9%] with ACE inhibitors *v* 460/2971 [15.5%] with placebo; OR 0.73, 95% CI 0.63 to 0.85; NNT 28, CI not reported), and recurrent non-fatal MI (324/2995 [10.8%] with ACE inhibitors *v* 391/2971 [13.1%] with placebo; OR 0.80, 95% CI 0.69 to 0.94; NNT 43, CI not reported). [26] The second review (search date 2003, 6 RCTs, 12 586 people) assessed mortality in subgroups of people with left ventricular dysfunction. [22] It found that ACE inhibitors reduced mortality compared with placebo. The magnitude of this benefit was smaller in women than in men, similar in people with and without diabetes, and similar in white and black people (women: RR 0.90, 95% CI 0.78 to 1.05; men: 0.80, 95% CI 0.68 to 0.93; with diabetes: RR 0.84, 95% CI 0.70 to 1.00; without diabetes: RR 0.85, 95% CI 0.78 to 0.92; white people: RR 0.89, 95% CI 0.82 to 0.97; black people: RR 0.89, 95% CI 0.74 to 1.06). [22]

ACE inhibitors plus angiotensin II receptor blockers:

See benefits of angiotensin receptor blockers added to ACE inhibitors.

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Harms

Major adverse effects reported in these trials were cough (ARI 5–10% with ACE inhibitors *v* placebo), dizziness, hypotension (ARI 5–10% with ACE inhibitors *v* placebo), renal failure (ARI < 3% with ACE inhibitors *v* placebo), hyperkalaemia (ARI < 3% with ACE inhibitors *v* placebo), angina, syncope, diarrhoea (ARI 2% with ACE inhibitors *v* placebo), and, for captopril, alteration in taste (2% of captopril users). [26]

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Comment

None.

References

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