Desferrioxamine mesylate for managing transfusional iron overload in people with transfusion-dependent thalassaemia

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Abstract

Background
Thalassaemia major is a genetic disease characterised by a reduced ability to produce haemoglobin. Management of the resulting anaemia is through transfusions of red blood cells.Repeated transfusions results in excessive accumulation of iron in the body (iron overload), removal of which is achieved through iron chelation therapy. Desferrioxamine is the most widely used iron chelator. Substantial data have shown the beneficial effects of desferrioxamine. However, important questions exist about whether desferrioxamine is the best schedule for iron chelation therapy.

Objectives
To determine the effectiveness (dose and method of administration) of desferrioxamine in people with transfusion-dependent thalassaemia.

Search strategy
We searched the Cochrane Haemoglobinopathies Trials Register, MEDLINE, EMBASE, ZETOC, Current Controlled Trials and bibliographies of relevant publications. We also contacted the manufacturers of desferrioxamine and other iron chelators.Date of last searches: April 2004.

Selection criteria
Randomised controlled trials comparing desferrioxamine with placebo; with another iron chelator; or comparing two schedules of desferrioxamine, in people with transfusion-dependent thalassaemia.

Data collection and analysis
Four authors working independently, were involved in trial quality assessment and data extraction. Missing data were requested from the original investigators.

Main results
Eight trials involving 334 people (range 20 to 144 people) were included. One trial compared desferrioxamine with placebo, five compared desferrioxamine with another iron chelator (deferiprone) and two compared different schedules of desferrioxamine. Overall, few trials measured the same outcomes.Compared to placebo, desferrioxamine significantly reduced iron overload. The number of deaths at 12 years follow up and evidence of reduced end-organ damage was less for desferrioxamine than placebo. When desferrioxamine was compared to deferiprone or a different desferrioxamine schedule there were no statistically significant differences in measures of iron overload. Compliance was recorded by two trials. Compliance was less for desferrioxamine than deferiprone in one trial and of no difference in comparison with desferrioxamine and deferiprone combined with a second trial.Adverse events were recorded in trials comparing desferrioxamine with other iron chelators. There was evidence of adverse events in all treatment groups. In one trial, adverse events were significantly less likely with desferrioxamine than deferiprone, relative risk 0.45 (95% confidence interval 0.24 to 0.84).Assessment of

the methodological quality of included trials was not possible, given the general absence of these data in the trials.

Author conclusions
We found no reason to change current treatment recommendations. However, considerable uncertainty continues to exist about the optimal schedule for desferrioxamine in people with transfusion-dependent thalassaemia.