Assessing the equivalence of Erythropoiesis-Stimulating Agents in haemodialysis patients following brand switching

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Background

Anaemia due to erythropoietin deficiency is a common complication for end stage renal disease patients. In haemodialysis patients, where all other causes have been ruled out, anaemia can be treated with an Erythropoiesis-Stimulating Agent (ESA). In August 2016 the contracted brand of ESA within Queendsland Health, was changed from Epoetin Lambda (Novicrit®) to Epoeitin Alfa (Eprex®) promising the same correction for uremic anaemia with expectation of dosage equivalency. The suggested conversion dose from Novicrit to Eprex from the manufacturer is 1:1.

Aim

To investigate potential dose variation and anaemia control efficacy in stable haemodialysis patients across three dialysis sites when switching erythropoiesis-stimulating agents from Novicrit® (Epoetin Lambda) to Eprex® (Epoetin Alfa); using haemoglobin level and drug dose as indicators. Additionally, evaluate the cost savings to hospitals following the change of ESA brands.

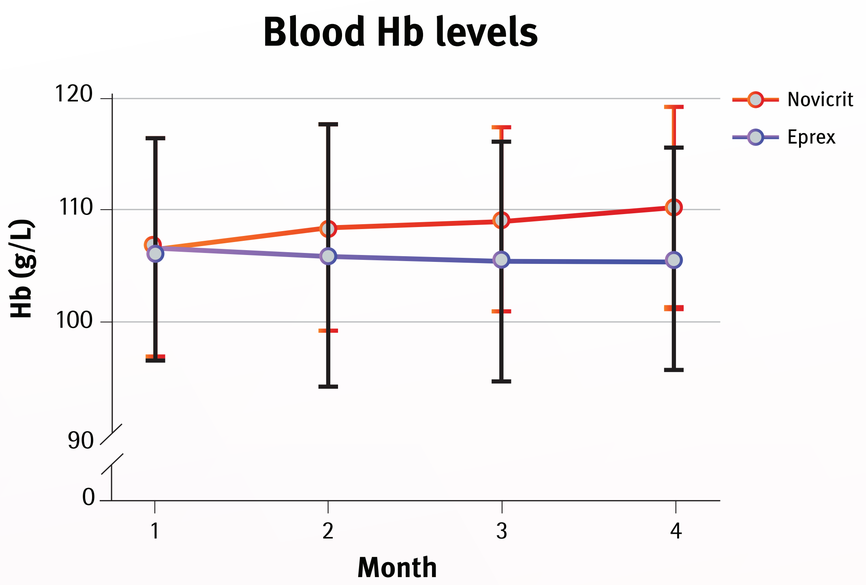
Methods

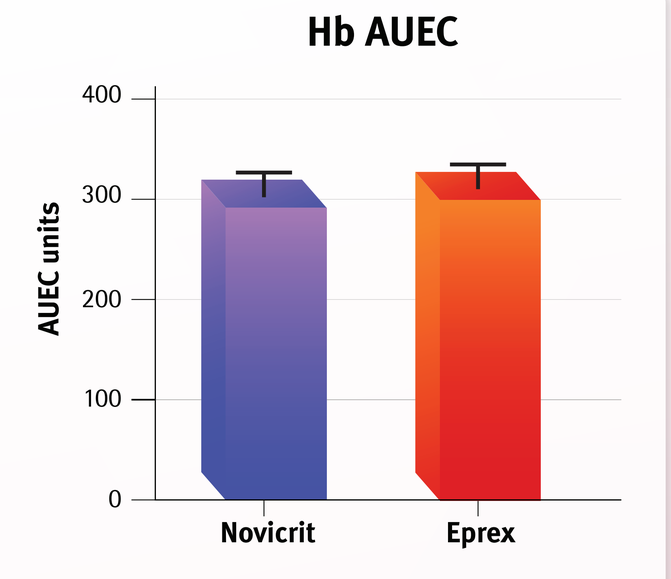
This study included all stable haemodialysis patients receiving an ESA for the duration of data collection, who have not received a blood transfusion, and dialyse in centre at Metro North Hospital and Health Service (MNHHS) dialysis units- Royal Brisbane and Women's Hospital, North Lakes and Redcliffe dialysis units.

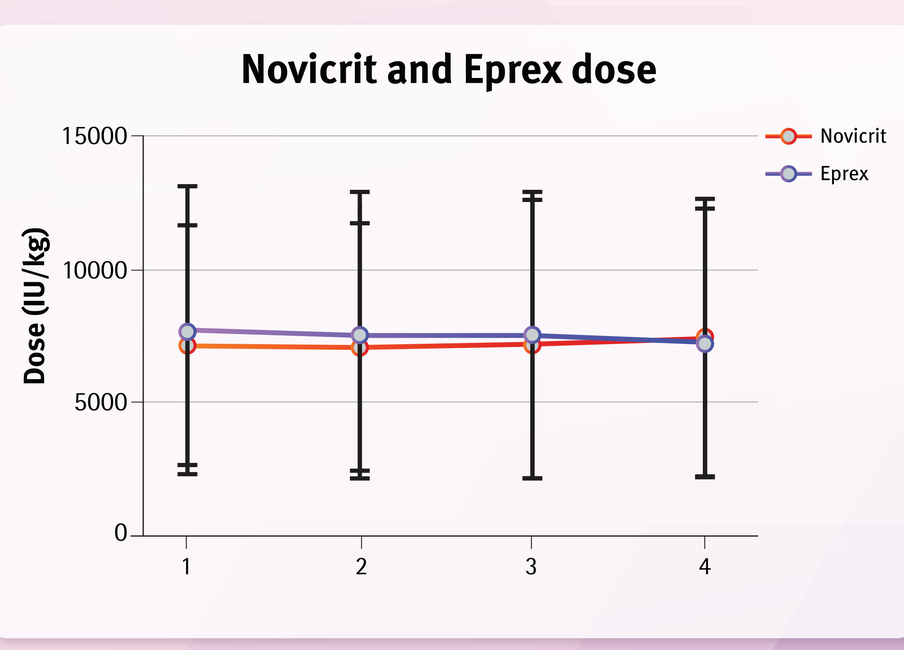
A retrospective review was performed of patients' ESA dosage and their corresponding haemoglobin level 4 months before and after the brand switch. Patients' routine monthly blood tests were reviewed to exclude patients who were unwell (C Reactive Protein (CRP) change of greater than 30 units), had been hospitalised or had blood transfusions during the ESA study period. Data was analysed to assess the absolute difference from baseline dose to ESA dose at 32 weeks. The pattern of haemoglobin levels was observed to see if they were maintained over the 32 week review period. ESA cost was calculated using average cost per unit based on the hospital's purchased price.

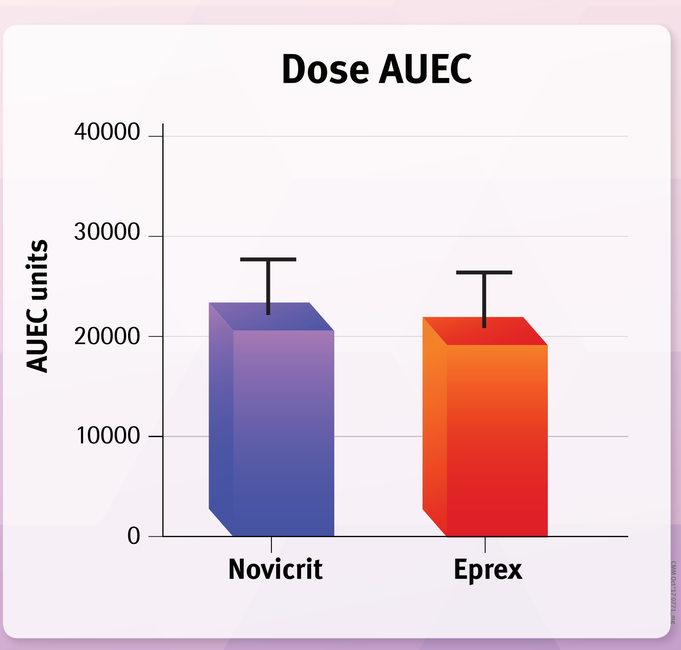
Results

Of 160 patients who undergo regular haemodialysis across the 3 Metro North Health Service dialysis units, 55 pts were included in the study. Excluded patients include 84 patients who did not receive continuous ESA for the duration of the study and 21 patients due to raised CRP or receiving a blood transfusion. Results indicate the median weekly prescribed doses of Novicrit® and Eprex® were equivalent per patient (6000 units) and showed comparable mean haemoglobin levels (105.8 vs 108.6) with no significant difference (p>0.05). When patients used Eprex®, 86% achieved target haemoglobin range as compared to 80% while on Novicrit® (p = 0.61). The maximal effects for each drug were no different. There was a total of $860/patient/year saving to the hospital following the switch to Eprex, based on projections of Eprex dose remaining constant.









Conclusion

There was no significant difference in dosing and recorded Hb levels between Novicrit® and Eprex® when switching agents, thereby supporting the manufacturers 1:1 dosing conversion. A higher proportion of analysed patients treated with Eprex® achieved a target anaemia control. The substitution of brands due to purchasing agreements achieved significant cost savings to hospital (~ $47, 00 per year).

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