

Treatment of iron deficiency anaemia in orthopaedic surgery with intravenous iron: efficacy and limits: a prospective study.

Theusinger OM, Leyvraz PF, Schanz U, Seifert B, Spahn DR.
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BACKGROUND: Preoperative anaemia is frequent in patients undergoing orthopaedic surgery. The purpose of this study was to assess the preoperative increase of haemoglobin in iron deficiency anaemia patients treated with intravenous iron.

METHODS: After obtaining written informed consent, 20 patients with iron deficiency anaemia received 900 mg intravenous iron sucrose over 10 days starting 4 weeks before surgery. Changes of haemoglobin and iron status were measured over 4 weeks and at discharge. In the last 11 patients, endogenous erythropoietin was also measured. Data were analyzed using the Friedman test followed by pairwise Wilcoxon signed rank tests with Bonferroni correction.

RESULTS: Haemoglobin increased significantly ($P < 0.0001$) after intravenous iron treatment. Overall, the mean maximum increase was 1.0 ± 0.6 g/dl (range, 0.2-2.2 g/dl). Ferritin increased from 78 ± 70 to 428 ± 191 microg/l ($P = 0.0001$), ferritin index decreased from 2.7 ± 2.4 to 1.5 ± 1.0 ($P = 0.0001$), and soluble transferrin receptor decreased from 4.1 ± 2.3 mg/l to 3.7 ± 2.3 mg/l ($P = 0.049$), whereas transferrin saturation (20.5 ± 9.0 to $22.9 \pm 9.0\%$) and serum iron (13.3 ± 4.6 to 13.1 ± 4.5 microm) did not change significantly after intravenous iron treatment. Endogenous erythropoietin decreased from 261 ± 130 pg/ml to 190 ± 49 pg/ml 2 weeks after intravenous iron treatment ($P = 0.050$, not significant after Bonferroni correction). No adverse events related to intravenous iron were observed. The maximum increase of hemoglobin was observed 2 weeks after the start of intravenous iron treatment, indicating that administration of intravenous iron 2-3 weeks before surgery may be optimal. **CONCLUSION:** Treatment with intravenous iron allows correcting iron deficiency anaemia before elective surgery.