

**Keyword:** Hematin therapy, liver function, clinical response, iron deficiency, anemia, treatment outcomes, patient characteristics, continuous trials, categorical trials, statistical significance, informed consent, limitations, retrospective design, secondary data source, small sample size, heterogeneity of

## Introduction

The prevalence of iron deficiency anemia (IDA) is increasing globally, particularly in women of reproductive age and the elderly. IDA is associated with various clinical consequences, including fatigue, weakness, and impaired cognitive function. Hematin therapy, which involves the administration of iron supplements, is a common treatment for IDA. However, the effectiveness of hematin therapy in improving liver function and clinical response remains unclear. This study aims to evaluate the impact of hematin therapy on liver function and clinical response in patients with IDA.

The primary outcome of this study was the change in liver function, measured by alanine aminotransferase (ALT) and aspartate aminotransferase (AST) levels, following hematin therapy. Secondary outcomes included clinical response, defined as the resolution of symptoms related to IDA, and long-term treatment outcomes. The study was conducted in a tertiary care hospital and involved 100 patients with IDA who were randomized to receive either hematin therapy or a placebo. The study was conducted in accordance with the principles outlined in the Declaration of Helsinki and informed consent was obtained from all patients or their legal guardians.

The duration of hematin therapy was 12 weeks. The primary outcome measures were changes in biochemical markers, specifically serum tyrosine levels, liver function tests, and clinical response. Secondary outcomes included resolution of symptoms related to IDA and long-term treatment outcomes. The study was conducted in accordance with the principles outlined in the Declaration of Helsinki and informed consent was obtained from all patients or their legal guardians.

Statistical analysis was used to summarize patient characteristics and treatment outcomes. Continuous variables were presented as means with standard deviations or medians with interquartile ranges, while categorical variables were presented as frequencies and percentages. Fisher's exact test or contingency table tests were used to compare the treatment parameters. Statistical significance was set at  $p < 0.05$ . This study was conducted in accordance with the principles outlined in the Declaration of Helsinki and informed consent was obtained from patients or their legal guardians. Limitations of this study included its retrospective design, potential selection bias, and reliance on secondary data source. Additionally, the small sample size and heterogeneity of

## Results and Discussion

The study included 100 patients with IDA who were randomized to receive either hematin therapy or a placebo. The baseline characteristics of the two groups were similar. The primary outcome, change in liver function, was significantly improved in the hematin therapy group compared to the placebo group. The secondary outcomes, clinical response and long-term treatment outcomes, were also significantly improved in the hematin therapy group.

