wjpmr, 2021,7(1), 233-234

SJIF Impact Factor: 5.922

WORLD JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH

www.wjpmr.com

Research Article

ISSN 2455-3301

WJPMR

THE STUDY OF COMPARISON OF DIFFERENT CHELATION TREATMENTS FOR THE PATIENTS OF THALASSEMIA

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DOI: https://doi.org/10.17605/OSF.IO/S3K6R

Article Received on 21/11/2020 **Article Revised on 11/12/2020** **Article Accepted on 01/01/2021**

ABSTRACT

Objective: To compare different therapies of chelation used for thalassemia based on effectiveness. **Place and Duration:** It was conducted from 1st May 2019 to 30 April 2020 in DHQ Teaching Hospital, Sargodha. **Materials and Methods:** The study included 80 thalassemia patients, divided into two groups of 40 patients. Deferiprone was given orally in Group 1, while deferoxamine was injected in Group 2. **Results:** The average age of the patients was 20.3 ± 4.3 years. Of 80 patients, 54 were male (67.5%) and 26 were female (32.5%). The average ferritin of all patients was 2645 ± 1260, whereas Group 1 was 2545 ± 1232 and for Group 2822 ± 1235. In both groups, there was no significant difference in ferritin level (p value=0.232). For patients, complications included 18.2% IGT, 7.8% DM and 28.7% hypothyroidism for all patients with thalassemia. **Conclusion:** Both therapies showed equal effectiveness in iron load control in patients with thalassemia.

KEYWORDS: Deferoxamine, Deferiprone, iron chelators, Beta-thalassemia.

INTRODUCTION

Thalassemia is a hemoglobinopathy caused by failures in the production of beta globulin. Anaemia and hepatosplenomegaly are its symptoms. Beta thalassemia management mainly includes blood transfusion, resulting in iron overload in different bodies (American Diabetes Association 2017). The iron chelators are used by oral and injectable means to reduce iron load. Deferiprone is the most common option in the iron chelator compared to injectable deferoxamine which reduces heart and endocrine iron loads (Farmaki, Tzoumari & Pappa 2011). Approximately 60% of thalassemia patients face an iron overload complication of endocrinopathies involving at least one endocrine organ. Meagre literature for comparing iron chelators based on efficacy in treating beta-thalassemia is present (Rostami, Hatami & Shirkani 2011). This study aims to compare the efficacy of various oral and injectable chelators for specific endocrinopathies, including hypothyroidism, impaired tolerance of glucose (IGT), and diabetes mellitus (DM).

MATERIALS AND METHODS

This research is an observational, forward-looking and cohort study. It was conducted from 1st May 2019 to 30 April 2020 in DHQ Teaching Hospital, Sargodha, and included 80 patients with thalassemia. Air, systemic or renal disease patients and those who receive long-term antibiotic treatment were excluded. The patients were divided into two groups, with 40 patients each. In group 1, patients received oral iron deferiprone chelator while in group 2, patients received deferoxamine injectable iron chelator. Demographic, clinical and diagnostic results have been noted. IGT was calculated, and plasma glucose levels were quickly calculated. Also, PTH, calcium serum and phosphate levels have been noted. All patients received informed consent. SPSS v.17 was used for statistical analysis. Means and standard deviations included descriptive statistics. Frequencies and percentages were calculated for qualitative variables. The p-value test of Chi-square 0.05 was considered significant.

RESULTS

The average age of the patients was 20.3 ± 4.3 years. Of 80 patients, 54 were male (67.5%) and 26 were female (32.5%). The average ferritin of all patients was 2645 ± 1260, whereas Group 1 was 2545 ± 1232 and for Group 2822 ± 1235. In both groups, there was no significant difference in ferritin level (p value=0.232). For patients, complications included 18.2% IGT, 7.8% DM and 28.7% hypothyroidism for all patients with thalassemia.

DISCUSSION

The present study assessed both the efficacy and the complications of both types of therapy. Desferrioxamine was the only iron chelator available before 1987.

Patients' adaptability to this treatment was flawed based on the ferritin level. Thus, the group which has better efficiency than the other cannot be said. This finding is supported by past research. Oral therapy with a combination of deferiprone and deferasirox is recommended to overcome ferritin levels in thalassemia patients. This recommendation was already made in previous Farmaki et al. research. Combination therapy is more efficient than individual therapies, and ferritin in patients is lower than average.

CONCLUSION

It can be concluded that both therapies manage iron overload equally effectively in thalassemic patients.

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