

Nature and severity of dental malocclusion in children suffering from transfusion-dependent β -thalassemia major

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DOI: <https://doi.org/10.1590/2177-6709.25.6.26.e1-9.onl>

Objective: To evaluate the prevalence and severity of malocclusion in children suffering from β -thalassemia and to assess orthodontic treatment need using Grainger's Treatment Priority Index (TPI) and index of orthodontic treatment need (IOTN)-dental health component (DHC).

Methods: A cross-sectional study was conducted on 200 transfusion-dependent children diagnosed with homozygous β -thalassemia and 200 healthy school children aged 11-17 years. The TPI and IOTN-DHC data was recorded for both groups. Total TPI score for each subject was calculated and graded according to malocclusion severity estimate (MSE). Independent sample *t*-test was used to compare mean TPI scores, overjet and overbite between thalassemic and healthy children. Chi-square test was used to compare the frequency of IOTN-DHC grades, Angle's classification, and MSE grades between thalassemic and healthy children.

Results: The most prevalent malocclusion was Class I in normal children (67.5%) and Class II in thalassemic children (59%). The mean overjet and overbite were significantly ($p < 0.001$) greater in thalassemic children than in healthy children. Severe tooth displacements were 3.5 times greater in thalassemic children, compared to controls. A greater proportion of thalassemic children were in IOTN grades 3 and 4, compared to the controls ($p < 0.001$). MSE grades 4 and 5 were significantly ($p < 0.001$) more prevalent in thalassemic children, compared to the controls.

Conclusion: There is a high prevalence of Angle's Class II malocclusion in thalassemic children. Majority of these children are categorized in higher grades of IOTN-DHC and TPI-MSE, showing a great severity of malocclusion and high orthodontic treatment needs.

Keywords: Thalassemia. Beta-thalassemia. Index of orthodontic treatment need. Malocclusion.

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How to cite: Jeelani W, Sher U, Ahmed M. Nature and severity of dental malocclusion in children suffering from transfusion-dependent β -thalassemia major. Dental Press J Orthod. 2020 Nov-Dec;25.6.26.e1-9. DOI: <https://doi.org/10.1590/2177-6709.25.6.26.e1-9.onl>

Submitted: June 26, 2019 - **Revised and accepted:** November 05, 2019

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