Republic of Iraq
Ministry of Higher Education
and Scientific Research
University of Baghdad
College of Dentistry

Oral Health Condition in Relation to Some Salivary Physicochemical Characteristics among a Group of Children with β-Thalassemia Major Syndrome

A Thesis

Submitted to the Council of the College of Dentistry/University of Baghdad in Partial Fulfillment of the Requirements for the Degree of Master of Science in Preventive Dentistry

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2019 A.D **1441 A.H**

Abstract

Background: Thalassemias constitute a group of congenital blood disorders which characterized by a defect in synthesis of one or more globin chains of human haemoglobin molecule and the resultant microcytosis and hypochromia of the red blood cells. Thalassemias are of two main types, alpha and beta thalassemia. Beta thalassemia major can resulted in many complications to the oral and maxillofacial structures and beside that, chronic hospitalization and prolonged treatment can deteriorate the oral health condition. Dental professionals should be aware of the nature and course of the disease and its implication on dental care and treatment.

Aim of the study: To assess the dental caries experience, oral hygiene status and gingival health condition in relation to some salivary immunological and physicochemical profiles among a group of children with β-thalassemia major syndrome in comparison with a control group.

Materials and Methods: This case-control study was conducted among (40) child aging (11-12 years) attending the thalassemia center in Thi-Qar governorate/Iraq, and a (40) child as a control group, matching the age and gender of the study group, was collected from a number of nearby primary schools. Dental caries experience was recorded according to the criteria of Manjie *et al*. Plaque index published by Sillness and Löe and the calculus component of the periodontal disease index of Ramfjord, were used to assess the oral hygiene status. Gingivitis was determined by using the modified gingival index of Lobene *et al*. The unstimulated salivary samples was collected to measure the salivary flow rate and pH and it was analyzed biochemically to measure the salivary IgA via the enzyme-linked immunosorbent assay (ELISA) method and salivary uric acid via using colorimetric spectrophotometry.

Results: Dental caries experience for the primary dentition (dmfs) and for the permanent dentition (DMFs) in β-thalassemias were higher than that for their controls. Plaque, calculus and gingival indices were higher among β-thalassemias than for their controls. Salivary pH was higher among β-thalassemias than their controls whereas a lower salivary flow rate was recorded among β-thalassemias than in their controls. There were a higher concentration of the salivary IgA and salivary uric acid among β-thalassemia than control subjects with significant difference. Salivary flow rate and pH among β-thalassemias were negatively correlated to caries experience in primary and permanent dentition, where as a weak positive correlation was recorded for salivary flow rate with plaque, calculus and gingival indices and the same results was recorded for the salivary pH with the calculus and gingival indices whereas a weak negative correlation was recorded with plaque index. A weak negative correlation was recorded between the salivary IgA and uric acid with the dental caries experience in permanent dentition.

Conclusion: Oral health condition among patients with β-thalassemia major syndrome was deteriorated in comparison with the control subjects. However, this result may not be correlated directly to the systemic disease itself, but rather it may be correlated to a group of local factors. Therefore, intensive educational and preventive programs must be directed for β-thalassemia major patients.