

Evaluation of the Orofacial manifestations, salivary insulin-like growth factor, alkaline phosphatase in serum and saliva of acromegalic patients

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Abstract

Background: Acromegaly is a metabolic disorder caused by excessive secretion of growth hormone (Somatotropin) and a resultant persistent elevation of insulin-like growth factor-I (Somatomedin-C) concentrations. The condition occurs after puberty (over secretion of growth hormone in children, before epiphyseal closure, causes gigantism) and in nearly all cases is due to a benign pituitary adenoma. It is characterized by an acquired progressive somatic disfigurement involving the face, extremities and many other organs, that are associated with systemic manifestations. The most typical clinical signs are the coarse facial features, large, spade shaped hands, and enlarged feet resulting from soft tissue swelling and bony enlargement.

Craniofacial changes are characteristic of this disease and may involve facial skin, extraoral and intraoral soft and hard tissues that can bring the patient to the dentist first.

Aim of study: The purpose of this study was to evaluate the orofacial manifestations and to assess the level of serum, saliva insulin like-growth factor-I and alkaline phosphatase biomarkers in patients with acromegaly.

Subjects, Materials and Methods: Intra and extra oral examination was done for acromegalic patients to find the orofacial manifestations and sixty specimens of serum and saliva collected from two groups of subjects (forty acromegalic patients and twenty healthy persons). The specimens were centrifuged and stored at -20°C then human Immunoradiometric assay kits were used for estimating insulin like-growth factor-I and human liquicolor kits were used for estimating alkaline phosphatase.

Results: The most characteristic orofacial findings noticed in the acromegalic patients were coarsening facial skin in 100% , enlarged prognathic mandible in 100%, spacing in the teeth in 73%, enlarged tongue with indentation on lateral border 95%, thick and negroid lips in 83%, class III jaw relationship in 73% and tempromandibular joint clicking in wide opening in 35% of the patients. Acromegalic patients had significantly higher salivary insulin like growth factor-I concentrations than healthy subjects (mean 21.26 vs. 20.48ng/mL; p=0.041), serum insulin like growth factor-I concentrations (mean 782.21 vs. 199.87ng/mL; p<0.001), salivary alkaline phosphatase concentrations (mean 11.61 vs. 7.79U/L; p<0.001), as well as serum alkaline phosphatase concentrations (mean 156.82 vs. 127.34U/L; P=0.013). The results show that significant correlation between salivary and serum insulin like growth factor –I in acromegalic group, while no significant correlation in control group, and show significant correlation between salivary and serum alkaline phosphatase in acromegalic patients.

Conclusions: The acromegaly associated with changes in the oral cavity so the dental professionals may be the first healthcare providers to come across such patients and may play an important role in the diagnosis and treating such patients. The measurement of salivary insulin like growth factor-I concentration may not represented the corresponding serum diagnostic fluid to the acromegalic patients.