ORIGINAL RESEARCH

Assessment of IgA level in patients with Squamous cell carcinoma

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ABSTRACT:
Background: Oral cancer is the 15th most prevalent cancer worldwide. The present study was conducted top assess IgA level in patients with Squamous cell carcinoma (SCC). **Materials & Methods:** The present study was conducted in the department of Oral Medicine & Radiology. A thorough oral examination was done in all patients. 5 mL of venous blood samples were collected from the anterior cubital vein in blood tubes. The serum was separated and was delivered to the biochemistry laboratory for the estimation of serum IgA level. **Results:** Group I had 30 patients with untreated cases of SCC, group II had 30 treated cases of SCC and group III had healthy subjects. The mean IgA level in group I was 645.2 mg/Dl, in group II was 304.7 mg/Dl and in group III was 301.6 mg/Dl. The difference was significant (P< 0.05). **Conclusion:** Authors found increased IgA level in untreated cases of squamous cell carcinoma as compared to healthy and treated cases.
Key words: Squamous cell carcinoma, IgA, Serum

INTRODUCTION

Oral cancer is the 15th most prevalent cancer worldwide. Among the oral cancers, 90% of them are squamous cell carcinomas (SCC). Although there have been significant advances in surgery and radiation therapy, the 5-year survival of the patient has remained at about 52% for the past few decades. Increased serum concentrations of immunoglobulins have been reported in oral cancer patients, with a higher level in males than females.[1]
IgA deficiency is the most common primary immunoglobulin deficiency in many ethnic populations.[2] The prevalence in Caucasians is approximately one in 500. Primary IgA deficiency is caused by defect of terminal lymphocyte differentiation, which leads to underproduction of serum and mucosal IgA; infected individuals have normal IgA genes. Most individuals with IgA deficiency are deemed to be clinically asymptomatic. Those with symptoms of immunodeficiency have predominantly sinopulmonary or gastrointestinal infections, which are more severe when there is associated IgG2/ IgG4 or IgG4 subclass or specific antibody deficiency. There is an increased incidence of autoimmunity and, possibly, atopy in IgA deficiency.[3]
IgA serves as a specific link between antigenic determinants on tumor cell and the host effectors cells.

Many authors have studied specific Ig response caused by cancer. Literature review reveals multifarious observations, with increased, decreased, and even normal levels of IgA. In addition, the severity of the immune derangements resulting from surgery, radiotherapy, or chemotherapy may be more important than pretherapy status in determining prognosis.[4] The present study was conducted top assess IgA level in patients with SCC.

MATERIALS & METHODS

The present study was conducted in the department of Oral Medicine & Radiology. It comprised of 30 patients with untreated cases of SCC of both genders. 30 healthy subjects and 30 treated cases of SCC were also included. All were informed regarding the study and written consent was obtained. Ethical clearance was obtained prior to the study from institutional ethical committee.
General information such as name, age, gender etc. was recorded. A thorough oral examination was done in all patients. 5 mL of venous blood samples were collected from the anterior cubital vein in blood tubes. The blood was allowed to clot for 60 min and centrifuged at 2000 rpm for 10 min. The serum was separated and was delivered to the biochemistry laboratory for the estimation of serum IgA level. The values were recorded

and subjected to statistical analysis. P value <0.05 was considered significant.

RESULTS

Table I: Distribution of Subjects

| Groups I (Untreated SCC)	Group I (treated SCC)	Group II (Healthy)
30	30	30

Table I shows that group I had 30 patients with untreated cases of SCC, group II had 30 treated cases of SCC and group III had healthy subjects.

Table II: Comparison of serum IgA level in all groups

Groups	IgA level (Mean) (mg/Dl)	P value
Group I	645.2	0.01
Group II	304.7	
Group III	301.6	

Table II, graph I shows that mean IgA level in group I was 645.2 mg/Dl, in group II was 304.7 mg/Dl and in group III was 301.6 mg/Dl. The difference was significant (P< 0.05).

Graph I: Comparison of serum IgA level in all groups
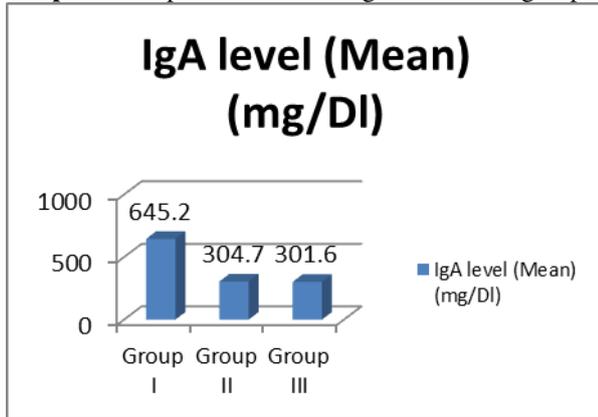
DISCUSSION

Cancers of the oral cavity and hypopharynx are highly common in Asian countries. One-third of global cases and one-half of oral cancer-related deaths are reported from Southeast Asia. In certain countries, such as Sri Lanka, India, Pakistan, and Bangladesh, oral cancer is the most common cancer.[5] In parts of India, oral cancer can represent more than 50% of all cancers, and it is the most common cancer among male and the third most common among female population, which is related to the deleterious oral habits such as tobacco chewing, betel-quid chewing, tobacco smoking, reverse smoking, as well as other factors such as alcohol consumption, low socioeconomic status, poor hygiene, poor diet, and viral infections, chronic irritation from ill-fitting dentures, rough, or fractured teeth.[6] The most common sites of occurrence of oral squamous cell carcinoma (OSCC) are buccal mucosa and tongue. Oral cancer affects males more frequently than females,

although the ratio is equalizing, and in recent times, increased number of cases is being reported in elderly females as well as young females. It predominantly affects middle-aged and older persons. However, the incidence of OSCC in persons under the age of 45 is increasing.[7]

Research in early cancer detection has led to discovery of many immunological tumor markers that contribute considerably to supplement the established method of diagnosis. The term "tumor marker" is applied to indicate the risk of cancer and its future behavior. The different tumor markers for the study of human cancers include oncofetal proteins, enzymes, hormones, polyamines, tumor associated antigens, circulating immune complexes (CIC), lipids, viral markers, immunoglobulin (Ig), and glycol proteins.[8]

Igs are protein molecules produced by the terminal cells of B- cell differentiation known as "plasma cells" and are localized in the beta and gamma globulin fractions of the serum. On the basis of differences in physicochemical properties and antigenic structure, five different Ig classes can be distinguished today, IgM, IgG, IgA, IgD, and IgE.[9] The present study was conducted top assess IgA level in patients with SCC. In this study, group I had 30 patients with untreated cases of SCC, group II had 30 treated cases of SCC and group III had healthy subjects. Rahman et al[10] conducted a study in which a total of 60 patients were included in the study. 20 biopsy confirmed oral SCC patients, who have received no medical treatment, 20 oral SCC patients treated with surgery and/or radiotherapy and 20 normal healthy individuals. They observed significant difference for serum IgA between study subjects in control, nontreated and treated oral SCC patients (P < 0.001). Serum IgA level in nontreated group was significantly higher than treated group and there was an approximately two-fold increase in serum IgA level in nontreated oral SCC patients when compared to that of the normal healthy individuals. We found that mean IgA level in group I was 645.2 mg/Dl, in group II was 304.7 mg/Dl and in group III was 301.6 mg/Dl. The difference was significant (P< 0.05). Mishra et al[11] reported the highest values of IgA in patients with advanced disease.

CONCLUSION

Authors found increased IgA level in untreated cases of squamous cell carcinoma as compared to healthy and treated cases.

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