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ANALYSIS OF HUMAN SALIVA AND ITS ROLE IN ORAL AND SYSTEMIC HEALTH AMONG LOCAL POPULATION OF PAKISTAN

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Abstract:

Introduction: *Saliva is fundamental to keep up adequate oral capacities, for example, grease, biting and gulping, discourse, oral pH adjust, taste observation, and regulation.*

Aims and objectives: *The basic aim of the study is to analyze the human saliva and its role in oral and systemic health among local population of Pakistan.*

Material and methods: *This cross sectional study was conducted in RHC Qila Ahmedabad during February 2019 to July 2019. Pregnant women and patients with a history of tobacco use and significant variations from normal body mass index were not included in the study. Unstimulated saliva was collected first by making the patient sit quietly, with the head bent down and mouth open to allow the saliva to drip from the lower lip into a sterile container (the draining method).*

Results: *Salivary parameters of control group and selected patients are represented in table 01. It shows that p value is significant in case of unstimulated salivary flow rate and stimulated flow rate. But in case of pH of saliva it's not significant.*

Conclusion: *It is concluded that saliva, as biological fluid is rich in diagnostic biomarkers for both the oral and systemic disorders.*

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INTRODUCTION:

Saliva is fundamental to keep up adequate oral capacities, for example, grease, biting and gulping, discourse, oral pH adjust, taste observation, and regulation. Quantitative and subjective changes in salivary stream can trade off these capacities. Therefore, subjects with salivary gland dysfunction are more powerless to periodontal ailment, uncontrolled caries, and fungal and bacterial oral diseases. Longitudinal examinations exploring the progression and force of salivary gland dysfunction in patients submitted to removal with iod ine 131 are rare in the writing [1].

Salivation is of rising significance in the medicinal and dental universes. It assumes a significant part in keeping up the soundness of the oral cavity by executing different host protection capacities, for example, homeostatic procedures, grease, antimicrobial movement, and control of demineralization of teeth [2]. Subjective and objective useful misfortunes have been accounted for by different investigations that happen in individuals without the capacity to create adequate volumes of salivation.

These useful misfortunes incorporate xerostomia, dysphagia, and an expanded weakness for crafty diseases. Unstimulated salivation is a pointer of the basal generation and gives generally assurance. It predominantly contains minor and submandibular glands' yield. The variables influencing unstimulated salivary stream rate (USFR) are level of hydration, body position, and introduction to light, past incitement, circadian rhythms, circannual rhythms, and drugs [3]. Empowered spit offers assurance amid rumination and aids deglutition. It is predominantly contained parotid gland yield. The elements influencing the invigorated salivary stream rate (SSFR) are nature of boost, heaving, smoking, gland estimate, choke reflex, olfaction, one-sided incitement, and food intake [4]. Any adjustment in the quality and amount of spit will prompt aggravations in the defensive elements of the salivation.

Relationship of salivary gland work with different foundational issue has been set up. Certain fundamental factors, for example, unending renal disappointment, menopausal and hormonal effects, and additionally side effects from solutions influence the arrangement, amount, and nature of salivation, straightforwardly or by implication [5]. Different variables causing salivary gland hypofunction are oral issue, chemotherapy, head-and-neck radiotherapy, psychogenic factors, and diminished rumination. Salivary stream dysfunction is a typical issue and is as often as possible undiscovered on the grounds that the patient's symptoms of oral dryness are an apparent inclination. Symptoms can be subjective as it is common for patients to be unaware of diminished salivary production until the resting flow rate is less than half of normal [6].

Aims and objectives:

The basic aim of the study is to analyze the human saliva and its role in oral and systemic health among local population of Pakistan.

MATERIAL AND METHODS:

This cross sectional study was conducted in RHC Qila Ahmedabad during February 2019 to July 2019. Pregnant women and patients with a history of tobacco use and significant variations from normal body mass index were not included in the study. Unstimulated saliva was collected first by making the patient sit quietly, with the head bent down and mouth open to allow the saliva to drip from the lower lip into a sterile container (the draining method). It was followed by collection of stimulated whole saliva using unflavored paraffin wax according to standardized collection procedure. Both the salivary flow rates were recorded.

Reference values:

Tenovuo and Lagerlöf in 1994 categorized normal USFR as 0.25–0.35 ml/min, low USFR as 0.1–0.25 ml/min, and hyposalivation as <0.1 ml/min. The SSFR values of the participants were categorized using Ericsson and Hardwick criteria. Participants with SSFR of 0.7–1 ml/min were classified as having low SSFR and <0.7 ml/min as having hypo salivation.

Estimation of pH of saliva:

The stimulated whole saliva was then analyzed for its pH and buffering capacity. A handheld digital manual pH meter (Hanna) was used to measure the pH of saliva.

Statistical analysis:

The collected data were analyzed using SPSS software (version 17). The results are presented as a mean with 95% confidence interval limits or standard deviations. The significant value for P <.05 was accepted as statistically significant.

RESULTS:

Salivary parameters of control group and selected patients are represented in table 01. It shows that p value is significant in case of unstimulated salivary flow rate and stimulated flow rate. But in case of pH of saliva it’s not significant (Table 01 and Figure 01).

Table 01: Salivary parameters of patients and control group

Variables	Group	n	Mean ± SD	P-value
Un stimulated salivary flow rate	Case	50	0.245 ± 0.154	<0.001
	Control	50	0.564 ± 0.176	
Stimulated salivary flow rate	Case	50	1.461 ± 0.455	<0.001
	Control	50	1.982 ± 0.244	
pH of saliva	Case	50	6.978 ± 0.373	0.217
	Control	50	6.789 ± 0.374	

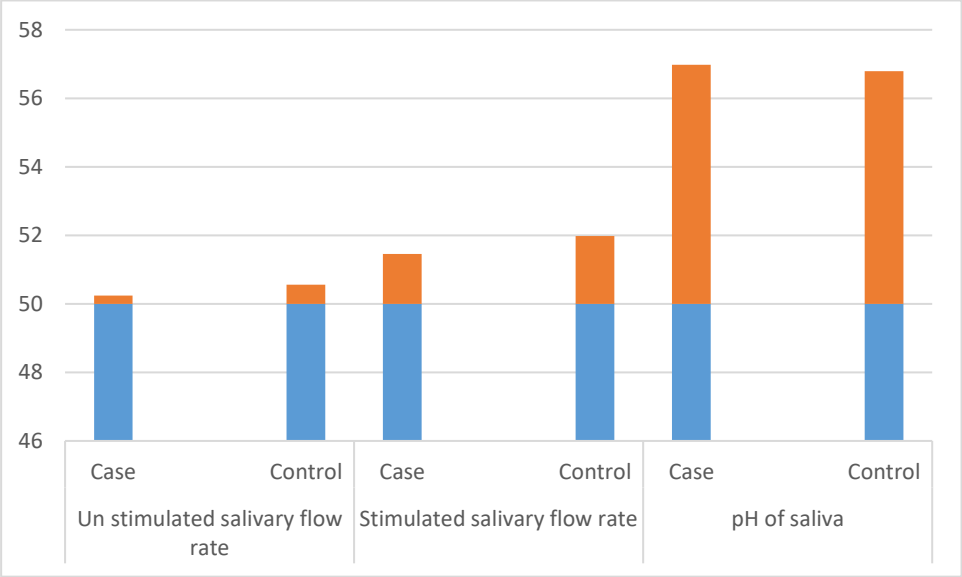

Figure 01: Salivary parameters

We develop a questionnaire for asking five questions to patients and control group. First of all we ask about some socio and demographic information about patients and control group.

DISCUSSION:

The relationship of salivary capacity with different fundamental ailments has been cited by various creators. There is a settled relationship of salivary capacity with regular sicknesses, for example, diabetes, oral sub mucous fibrosis, and asthma [7]. Thyroid issue are a standout amongst the most well-known endocrine issue all inclusive and broadly, yet at the same time there is a critical deficiency of value prove that can build up its association with salivary capacity. Prior examinations in human subjects either evaluated just hypothyroid members or utilized scintigraphy or parotid gland stream rates [8].

The data received from the investigation led by Farsi in 2007 was utilized to decide the impression of subjective oral dryness among the members. To the best of our insight, such an evaluation in thyroid dysfunction patients has not been distributed in writing. One of the inquiries gave the patient's view of resting spit while the other three concentrated on the animated salivation. The outcomes recommend that the experience of oral dryness was more among the thyroid issue patients than the healthy controls [9].

The salivary composition contains 99% water and 1 % solvent molecules (organic and inorganic) with a paramount value of quantity as well as quality. The salivary glands are composed of acinar and ductal cells [10]. A large serous secretion is produced by the acinar cells of the parotid glands. The production of calcium by acinar gland is lesser as compared to submandibular gland; however, it does synthesize most of the alpha-amylase. The submandibular glands are responsible for producing mucins along with the sublingual glands. It also produces proline and histatin-rich proteins in conjunction with the parotid [11].

CONCLUSION:

It is concluded that saliva, as biological fluid is rich in diagnostic biomarkers for both the oral and systemic

disorders. The interest in saliva as a diagnostic tool is due to the fact that the collection of the sample is easy and simple with non-invasive interventions, therefore, avoiding the risk of infection spread.

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