

Gagging: A problem in prosthetic dentistry and its medical treatment

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ABSTRACT

This study was designed to diagnose and treat patients having gagging reflex whom need prosthetic treatment; patients in this study were wearing denture or received new one; those attending Prosthodontic Department/ College of Dentistry/ University of Mosul.

The sample of this study was 243 patients consisting of 167 males and 76 females and their ages ranged between 22–79 years old. All of them had either single upper, partial or complete denture excluding from this study all patients who did not have denture before, because this study directed toward prosthetic patients only.

A sample, which consists of 243 patients, was divided into two main groups according to their response to gag reflex. The first one represented the control group which consisted of 200 patients, those did not have gagging reflex problem while the second group which represented those patients who they suffer from gagging problem when they are wearing or during denture insertion and consisted of 43 patients: Each one of them subdivided furthermore into subgroups according to patient's medical health status and sex. The second group (gagging patient) subdivided furthermore into 3 subgroups according to severity of gag reflex in which according to that, treatment plan had been made and it consisted of psychological treatment only for patients with mild and moderate gagging and medical and psychological treatment for patients with severe gagging reflex which include metoclopramide and valium 2.

The result of this study demonstrated that those patients with severe gagging reflex problem reflect difficulties during prosthetic treatment which required medical and psychological treatment, which include reassurance of patient with explanation of steps of prosthetic treatment plan to reduce fear and anxiety before any prosthesis construction and the response of those patients to medical treatment was approximately 58.3% to this treatment and it was concluded that any type of prosthetic treatment in patients with gagging reflex required medical and psychological treatment plan.

Key Words: Gag reflex, retching reflex, medical treatment of gagging patient.

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INTRODUCTION

The patients who develop gagging problem with dentures are frequently difficult to be treated.⁽¹⁾ Gagging is an involuntary contraction of the muscles of the soft palate or pharynx which results in retching,⁽²⁾ and it is mediated by mechanoreceptors in superior laryngeal nerve which project to nucleus tractus solitarius.^(2,3) It is an adaptive vital mechanism controlled primarily by the parasympathetic division of autonomic nervous system, although the tactile stimulation of the sensory receptors of the soft palate is the most obvious mean by which the reflex can be elicited, gustatory, olfactory, visual cognitive stimuli may also elicit the reflex either as unconditioned or conditioned stimuli.^(1,4) Some patients have a hypertensive gagging reflex evident prior to and during denture construction. The insertion or removal of complete denture may elicit gagging, however occasionally a patient develops gagging problem after denture insertion.⁽¹⁾

Gag reflex that is hyperactive for whatever reason is not uncommon and present a problem for dentists, particularly when it is necessary to make impressions or fit prosthesis.^(5,6) It is a serious problem because failure to overcome the hyperactive reflex may leave the patient permanently edentulous, an esthetically and nutritionally unsatisfactory outcome, which attributed to severe oral changes (bone resorption, temporomandibular joint problem, changes in vertical dimension,etc).⁽⁷⁾

Gagging can result from chemical irritants, toxic materials ingested with food, specific drugs, severe pain, strong emotional situations or mild stimulation of the pharynx or fauces.⁽¹⁾

Several treatment approaches beyond the correction of mechanical factors. Several authors^(5,8,9) had advocated hypnosis or various medications such as sedatives, antihistamines, parasympatholytics and topical anaesthesia^(6,9) or topical anaesthesia with lidocaine spray,⁽¹⁰⁾ relaxation, relaxation plus controlled breathing and positive self statement⁽¹¹⁾ and performance of incompatible responses such as reading a loud have been used with some success.⁽¹²⁾ Some dentists making an impression of a maxillary edentulous patient with gag reflex by pressing caves.⁽¹³⁾ Even psychotherapy

has been recommended for otherwise intractable "chronic or hysterical" gagging.⁽⁵⁾

A complete denture patient may develop gagging problem as a result of several causes; some of them related to denture itself, others are psychogenic factors such as refusing to swallow of saliva because of fear that the denture will dislodge.⁽¹⁾ So as a result of not swallowing, saliva would be accumulate and triggers gagging reflex.^(1,14)

The aim of this study was to diagnose and treat those patients with gagging reflex problem whom need prosthetic treatment.

MATERIALS AND METHODS

In this clinical study, the sample consisted of 243 prosthodontic patients, 167 males and 76 females who they had receiving or wearing prosthodontic appliance whether single upper denture, partial denture or complete dentures. Their ages ranged between 22–79 years old. Those patients attending Prosthodontic Department/ College of Dentistry/ University of Mosul.

The collection of sample took about 1 year from 1 October, 2003 until 1 October, 2004; excluded from this study all the patients who did not wear prosthetic appliance before, those about 157 patients.

The sample was divided into two main groups; the first one which was the control group and represented by those patients who did not suffer from gag reflex problem during and after insertion of denture, while the second group represented those patients who had suffered from gag reflex problem during and after denture insertion.

The collection and selection of patients for this study depend on certain information obtained directly from each subject using special case sheet as shown in Figure (1). So, 243 case sheets were prepared especially for this study.

The selected two main groups were subdivided furthermore into subgroups according to sex and medical health status, and the second group subdivided into 3 subgroups according to the severity of gag reflex (mild, moderate and severe), and treatment plan had been made accordingly, each one of them subdivided into 2 subgroups according to sex.

University of Mosul/College of Dentistry
Prosthodontic Department
Case Record

Date:

1. Patient's Name:
2. Age:
3. Sex:
4. Does the patient have prosthetic appliance? Yes No
 If the answer is "yes", type of prosthetic appliance: _____.
5. Does the patient have gagging reflex problem? Yes No
 If the answer is "yes":
6. Which type of gagging reflex does he/she have?
A.Mild: Rarely occur and in some instances.
B.Moderate: Occasionally occur after long time of denture insertion
C.Severe: Immediately during and after denture insertion
 (direct reaction).

Figure (1): Case Record

The severity of gag reflex problem for each patient depend on his/her own word. This is because gag reflex problem can not be measured and did not have any score. So, if the patient told us that he/she was suffering from gag reflex rarely and in some instances, we considered it as mild reflex; while if the patient demonstrated this reflex after long time of denture insertion, this considered as moderate reflex; but if the gag reflex occur immediately during and after denture insertion (direct reaction) this reflex regarded as severe. This was shown in Figure (1).

In this study, those patients with mild and moderate gagging reflex treated only psychologically because this reflex not interfere with prosthesis construction, while patients with severe gagging required psychological plus medical treatment which

include metoclopramide (10 mg) tablet (SDI, Iraq) and valium (2 mg) tablet (SDI, Iraq) one hour before dental appointment.

Statistical analysis of data was descriptive, including calculation of frequencies and percentages.

RESULTS

The result of this study demonstrated that from 243 prosthodontic patients, 200 patients had no gag reflex problem which considered as control group; their ages ranged between 22–75 years old and the mean of their ages was 48.5 years, whereas 43 patients were suffering from gag reflex and their ages ranged between 35–79 years old with the mean of their ages was 57 years as shown in Table (1).

Table (1): Age distribution of prosthodontic patients

Gag Response	No. of Subjects	Range of Age (Years)	Mean of Age (Years)
With Gag	43	35–79	57
No Gag (Control)	200	22–75	48.5

In the control group (no gagging problem), males had a higher percentage (75%) than females as shown in Table (2), while the opposite result was obtained in the second group (gagging patients) in which a higher percentage was obtained with females than males which was 60.5%. Also the result demonstrated that the percentage of males in total sample size were higher than females as shown in Figure (2). This result showed that the number and

percentage of healthy prosthodontic patients were lesser than the medically compromised one in the control group as shown in Table (3), while the opposite result was obtained with those patients suffering from gagging problem. Also the result demonstrated that from a total of 243 patients, the medically compromised subjects had a higher percentage and number than the healthy subjects as shown in Figure (3).

Table (2): The percentage distribution of prosthodontic patients according to their response to gag reflex and sex

Gag Response	Male	Female	Total
With Gag	17 (39.5%)	26 (60.5%)	43 (100%)
No Gag (Control)	150 (75%)	50 (25%)	200 (100%)

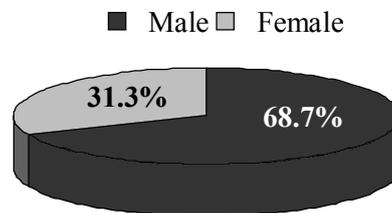


Figure (2): The percentage distribution of prosthodontic patients according to sex

Table (3): The percentage distribution of prosthodontic patients according to their response to gag reflex and medical health

Gag Response	Healthy Subjects	Medically Compromised Subjects	Total
With Gag	25 (58.2%)	18 (41.8%)	43 (100%)
No Gag (Control)	90 (45%)	110 (55%)	200 (100%)

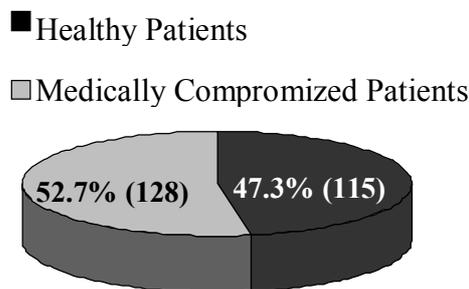


Figure (3): The percentage distribution of prosthodontic patients according to medical health status

According to the severity of gagging reflex problem, the second group subdivided into mild, moderate and severe subgr-

oups as mentioned before and higher percentage of prosthodontic patients were suffering from mild type of gagging problem

and the percentage of females in this group were higher than males as shown in Table (4) and Figure (4). While the least percentage of those patients were suffering from moderate type of gagging problem in which the percentage of females were higher than males; while in severe type, the same

percentage was obtained for both sexes. The response to the medical treatment in severe gagging patients was 58.3% by using metoclopramide + valium 2. The number of patients with severe gag reflex that respond to medical treatment can be shown in Table (5).

Table (4): The percentage distribution of gagging patients according to severity of gag reflex and sex

Sex	Severity of Gag Reflex		
	Mild	Moderate	Severe
Male	9 (37.5%)	2 (28.5%)	6 (50%)
Female	15(62.5%)	5 (71.5%)	6 (50%)
Total	24 (100%)	7 (100%)	12 (100%)

■ Mild □ Moderate ■ Severe

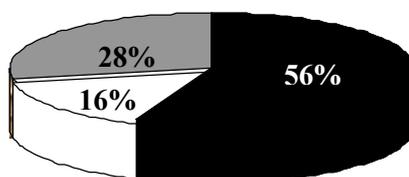


Figure (4): The percentage distribution of gagging patients according to severity of gag reflex problem

Table (5): The response to medical treatment in severe gagging patients

Gagging Patient	The Response to Treatment	
	Yes	No
12	7 (58.3%)	5 (41.7%)

DISCUSSION

The degree of gagging that accompanies the palatal reflex varies considerably from one person to another. Palatal reflex is significant in the construction of full dentures and in many other dental procedures.⁽¹⁵⁾ This agreed with the result of this study in which there are three degrees of gagging reflex in which prosthodontic patients suffer from them; those either mild, moderate or severe.

There are many individuals in whom palatal reflex is so hypersensitive (severe gagging patients) that the least manipulation of the tissues in the posterior portion of the mouth especially those adjacent to soft palate will produce gagging. In such

persons, any dental procedure can not be accomplished without medical treatment (severe gagging patients).⁽¹⁵⁾ The result of previously mentioned study would be in agreement with this clinical study.

In this study, patients with mild and moderate gagging reflex problem need only psychological treatment which include reassurance and explanation of the steps of prosthetic treatment plan because such reflex may be psychogenic as a result of increase salivation or concurrent with more serious disorder not attributed to oral changes,⁽¹⁵⁾ while those prosthetic patients with severe gagging reflex problem treated psychologically and medically because such reflex is so severe that interfere with pr-

osthesis construction in such patients. The medical treatment include metoclopramide which is valuable drug for suppression of nausea by antagonism of dopamine receptors both centrally and peripherally.⁽¹⁶⁾ It also increases upper gastrointestinal tract motility by enhancing the action of acetylcholine.⁽¹⁷⁾ For benzodiazepine (valium 2), which was also used to control patients' fear and to produce muscles relaxation during prosthetic construction procedures in severe cases only.^(17, 18) In this study, the response to medical treatment (metoclopramide + valium) was only 58.3% in severe cases as shown in Table (5) due to the fact that emesis is a complex reflex brought about by activation of the vomiting center, a nucleus of neuron located in the medulla oblongata. Some stimuli activate the vomiting center directly, others act indirectly. Direct-acting stimuli include signals from the cerebral cortex (anticipation and fear), signals from sensory organs (upsetting sight, noxious odor and pain) and signals from the vestibular apparatus of the inner ear. While indirect-acting stimuli first activate the chemoreceptor trigger zone which, in turn, activates the vomiting center.^(17, 18)

CONCLUSION

In this study, it could be concluded that patients with mild and moderate gagging reflex required psychological treatment only while any type of prosthetic procedure can not be accomplished in those patients with severe gagging reflex problem without psychological and medical treatment.

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