

Knowledge and Awareness of Bell's Palsy Among Dentists and Dental Students in Riyadh City, Kingdom of Saudi Arabia

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ABSTRACT

Introduction: Bell's palsy is an idiopathic, acute peripheral palsy of the facial nerve that results in muscle weakness on one side of the face, characterized by sudden onset, and unilateral facial paralysis, lower motor neurone weakness of the facial nerve with no other neurological abnormalities and no readily identifiable cause.

Aim: The aim of this study was to measure the knowledge and attitude among dental students and dental interns about Bell's palsy in Riyadh city, KSA.

Materials and Methods: A cross sectional paper based questionnaire survey and An online survey was developed using surveymonkey.com. 654 dentists and dental students in Riyadh City carrying out by using online Raosoft Sample Size Calculator.

Results: Of the total 645 participants, over two third were females (68), The majority of the participants reported that they have heard about Bell's palsy (92%). The majority reported appropriately that facial nerve is affected in a patient with Bell's palsy (87%). One third re-ported that diabetes is a risk factor for Bell's palsy (33%). Most of the participants reported that Bell's palsy last up to 6 months (59%). The majority reported that Bell's palsy can happen during inferior alveolar nerve block (72%).

Conclusion: The knowledge of anatomy, diagnosis and treatment was satisfactory and suggest that they have sufficient awareness. Dental students and dentists should expose to any medical condition that could be happen because of iatrogenic reason.

Keywords

Dental management, Dental Students, Facial nerves, Bells Palsy.

Introduction

Sir Charles Bell in 1821 was the first to describe the facial nerve, and eight years later presented two cases idiopathic facial paralysis, since then idiopathic facial paralysis has been termed as Bell's palsy [1]. Bell's palsy is an idiopathic, acute peripheral palsy of the facial nerve that results in muscle weakness on one side of the face, characterized by sudden onset, and unilateral facial paralysis, lower motor neurone weakness of the facial nerve with no other neurological abnormalities and no readily identifiable cause [2].

Other features may include facial creases and nasolabial fold disappear, the forehead unfurrows, and the corner of the mouth droops. The eyelids will not close and the lower lid sags; on attempted closure, the eye rolls upward [3].

Although the reason for Bell's palsy remains unclear [4]. Bell's palsy is believed to be caused by inflammation of the facial nerve [5]. Recently, attention has focused on infection with herpes simplex virus type 1 (HSV-1) and/or herpes zoster virus from the geniculate ganglion is thought to be the mostly likely cause [6-8].

A careful history of the onset and progress of paralysis is important.

Medical history should include recent rashes, arthralgias, or fevers; history of peripheral nerve palsy; exposure to influenza vaccine or new medications.

Aim

To Analyze and evaluate the knowledge and Awareness toward Bell's palsy Among Dentists and Dental Students in Riyadh City, Kingdom of Saudi Arabia.

Materials and Methods

Ethical Approval

Study proposal was submitted to the research center of Riyadh Elm University and ethical approval (Institutional Review Board IRB) was obtained. The study was registered under the registration number: FUGRP/2018/211.

Study Method: Quantitative.

Study Design: A cross sectional paper-based questionnaire survey and an online survey was developed using surveymonkey.com.

Study Population: Dentists and dental students in Riyadh City, Kingdom of Saudi Arabia.

Sample Size: 654 carrying out by using online Raosoft Sample Size Calculator.

Questionnaire: A structured, close-ended, and self-administered questionnaire.

Consist of 24 questions: Three questions requesting the respondents' biographic and practice demographic information. Nine questions related to their general knowledge regarding anatomy and Bell's palsy, three questions related to their knowledge regarding diagnosis and treatment of Bell's palsy and eight questions related to their knowledge regarding dental consideration of Bell's palsy.

Statistical Analysis

The information and data from the study entered into an electronic database (SPSS® for windows®V.20).

Results

Of the total 645 participants, over two third were females (68%). The distribution of participants by year and University is shown in table 1. Most of the participants reported that they have heard about Bell's palsy (92%) (Figure 1). Most of the participants reported that books and seminars as their source of knowledge regarding Bell's palsy (61%) (Figure 2).

		n (%)
Year	Year 4	137 (21)
	Year 5	141 (22)
	Year 5	186 (29)
	Intern	79 (12)
	General Practitioner	102 (16)

Gender	Male	207 (32)
	Female	438 (68)
University	Riyadh Elm University (REU)	223 (35)
	King Saud University (KSU)	111 (17)
	King Abdullah bin Abdulaziz Hospital (KAAUH-PNU)	103 (16)
	DAU	69 (11)
	Farabi College	62 (10)
	Other	77 (12)

Table 1: Characteristics of the participants.

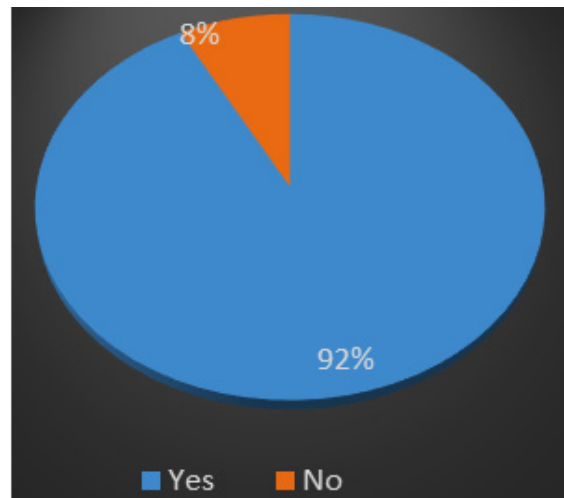


Figure 1: Participants response on if they have ever heard about Bell's palsy.

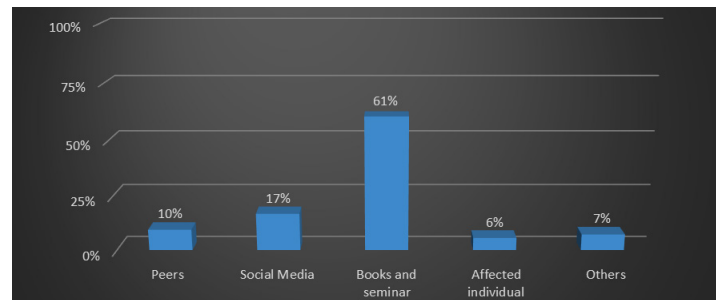


Figure 2: Source of knowledge regarding Bell's palsy.

Table 2 shows knowledge of participants regarding anatomy and Bell's palsy. The majority reported appropriately that facial nerve (7th cranial nerve) is affected in a patient with Bell's palsy (87%). Over half the participants reported that Bell's palsy is peripheral facial palsy (57%). Only one third (33%) reported that Bell's palsy affects both side of face while the majority (52%) reported that affect one side, and 38% reported that Bell's palsy is triggered by viral infection. One third reported that diabetes is a risk factor for Bell's palsy (33%). Just over half the participants (53%) reported lagophthalmos (Inability to close the eye completely) is the early ocular complications. Only one third (33%) reported that in grade VI the patient face is totally paralysis and 30% reported that incomplete eye closure happens in grade IV of Bell's palsy. Most of the participants reported that Bell's palsy last up to 6 months (59%).

Table 3 shows knowledge regarding diagnosis and treatment of Bell's palsy. Approximately half the participants appropriately reported that electroneurography study measures facial nerve degeneration in patients with Bell palsy (52%). Only 39% reported if that if the treatment is administered, corticosteroids is the most widely accepted. Two third reported that Bell's palsy is not permanent damage (66%).

		n (%)
Which Cranial nerve is affected in a patient with Bell's palsy?	Optic nerve (2nd cranial nerve)	20 (3)
	Trigeminal nerve (5th cranial nerve)	35 (5)
	Facial nerve (7th cranial nerve)	561 (87)
	Vagus nerve (10th cranial nerve)	28 (4)
Do you think that Bell's palsy Central or Peripheral Facial palsy?	Central FP	179 (28)
	Peripheral FP	364 (57)
	I don't know	101 (16)
Can Bell's palsy affect both side of face?	Yes	211 (33)
	No	337 (52)
	I don't know	96 (15)
Is Bell's palsy triggered by viral infection?	Yes	245 (38)
	No	265 (41)
	I don't know	134 (21)
Which of the following disease have risk factor for Bell's palsy?	Diabetes	213 (33)
	Hypertension	223 (35)
	Obesity	52 (8)
	Severe preeclampsia	156 (24)
What is the early ocular complications?	Lagophthalmos (Inability to close the eye completely)	342 (53)
	Synkinesis (Abnormal involuntary facial movement)	87 (14)
	Contracture of the facial muscles	136 (21)
	I don't know	79 (12)
Incomplete eye closure happened in which of the following grade of Bell's palsy	Grade I	148 (23)
	Grade II	60 (9)
	Grade III	111 (17)
	Grade IV	191 (30)
	I don't know	134 (21)
In which grade the patient face is totally paralysis?	Grade IV	39 (6)
	Grade V	57 (9)
	Grade VI	214 (33)
	Grade VII	204 (32)
	I don't know	130 (20)
How long does Bell's palsy last?	Up to 6 months	378 (59)
	More than a year	145 (23)
	I don't know	121 (19)

Table 2: Knowledge regarding anatomy and Bell's palsy.

		n (%)
	Electroneurography	336 (52)
	PET	76 (12)
	CT scan	85 (13)

Which of the following studies measures facial nerve degeneration in patients with Bell palsy?	I don't know	147 (23)
If treatment is administered, which of the following is the most widely accepted?	Corticosteroids	248 (39)
	Surgery	131 (20)
	No need for treatment, Follow up only	175 (27)
	I don't know	89 (14)
Is Bell's palsy permanent damage?	Yes	109 (17)
	No	424 (66)
	I don't know	110 (17)

Table 3: Knowledge regarding diagnosis and treatment of Bell's palsy.

Table 4 shows knowledge regarding dental consideration of Bell's palsy. Only 23% appropriately reported that they have faced patient with Bell's palsy in their clinic. The majority reported that Bell's palsy can happen during inferior alveolar nerve block (72%). Only 15% reported that no treatment is required if Bell's palsy happens immediately after procedure and 27% reported that viral infection could be the cause if Bell's palsy have a late onset after therapy (hours; days). Only 29% reported that dental procedure can be done if the patient has Bell's palsy and 40% reported that Bell's palsy cause dry mouth. Most of the participants reported that Botox is recommended as an esthetic solution (60%). However, only 38% re-ported that area of injection for Botox will be unaffected area.

Pearson Chi Square test showed no statistically significant association between knowledge regarding anatomy, diagnosis, treatment, and dental considerations of Bell's palsy and characteristics of the participants ($p>0.05$).

		n (%)
Have you ever faced patient with Bell's palsy in your clinic?	Yes	149 (23)
	No	492 (77)
Do you think that Bell's palsy can happened during Inferior Alveolar Nerve Block?	Yes	459 (72)
	No	95 (15)
What is the appreciated treatment if Bell's palsy happened immediately after procedure?	I don't know	87 (14)
	No treatment required	96 (15)
	Anti-inflammatory therapy	259 (40)
	Steroid therapy	169 (26)
	I don't know	117 (18)
If Bell's palsy has a late onset after therapy (hours; days), the cause could be?	Needle injection injury	245 (38)
	Viral infection	174 (27)
	Wrong dental procedure	132 (21)
	I don't know	89 (14)
If you have patient with Bell's palsy, can you do dental procedure?	Yes	188 (29)
	No	451 (71)
Does Bell's palsy cause dry mouth?	Yes	257 (40)
	No	187 (29)
	I don't know	197 (31)

Do you think Botox is recommended as an esthetic solution?	Yes	386 (60)
	No	138 (22)
	I don't know	119 (19)
The area of injection for Botox will be?	Affected area	348 (54)
	Unaffected area	246 (38)
	Area away from the face	49 (8)

Table 4: Knowledge regarding dental consideration of Bell's palsy.

Discussion

Our aim of this study is to measure knowledge and awareness of Bell's palsy among dentists and dental students in Riyadh city. According to this study the dental students and dentist awareness of bell's palsy was satisfactory, the participants generally have reasonable information about bell's palsy so, they are aware enough about the disease. This present study examines the knowledge and attitude among the dentists on Bell's palsy, to our knowledge there have almost no reported studies on knowledge and attitude of Bell's palsy among dental students.

The survey showed that participants have a good background knowledge about the anatomy of the disease the majority (87%) reported that facial is affected in a patient with Bell's palsy, (57%) of the participants reported that Bell's palsy is peripheral facial palsy and (52%) reported that affect one side.

A study was conducted in Karachi, Pakistan on the knowledge of Bell's palsy among students of pharmacy, science and arts faculties. It is observed that out of 120 students' only 61.67% students knew about Bell's palsy. It was concluded that the knowledge of Bell's palsy among students was inadequate [9].

AlYahya et al., 2018 reported that the level of knowledge about Bell's palsy risk factors and its treatment was poor in Al-Hasa, the participants generally have limited information about bell's palsy and the community awareness of bell's palsy is low they are not aware enough [10].

The main cause of the disease is not yet clear, it is linked to exposure to a viral infection such as the varicella-zoster virus and Epstein-Barr viruses, both of herpes family [11], in this study 38% have awareness about the etiology. Another study was conducted in Riyadh, Kingdom of Saudi Arabia (KSA) in 2016 on the awareness and knowledge of neurological complications while administering local anesthesia among the dental professionals which included students and practitioners, it was found that 82% of the participants were aware of facial paralysis as a possible complications of inferior alveolar nerve block [12]. However, this study did not mention the type of facial paralysis.

According to a study done by [13] Electroneurography is an valuable diagnostic test and should be done several time in different point of Bell's palsy since in most cases nerve degeneration last for first two weeks. In this study 52% of the participants answered that Electroneurography useful in measures facial nerve degeneration in patients with Bell's Palsy which is a satisfactory proportion

compared to 23% who choose "I don't know".

As for treatment, 39% of participant choose corticosteroid as most widely accepted and other majority were 27% for "No need for treatment, Follow up only. Previous studies reported that initial treatment of Bell's palsy is corticosteroid to improve facial function recovery and reduce inflammation, antiviral medication which may be prescribed if a virus caused Bell's palsy. [14] Surgical decompression as primary treatment is also controversial and it's not currently recommended [15].

In a case report study by Chevalier et al., [16] it was found that after two hours of administration of inferior alveolar nerve block the patient felt the complete onset of paralysis on the left-side of the facial muscles which the neurologists diagnosed as Bell' s palsy after looking into other medical history of the patient .

In this Study 60% of target group were agreed botox as esthetic solution for Bell's palsy. However, Facial asymmetry and muscular contractures may require cosmetic surgical procedures or botulinum toxin (Botox) injections. In these cases, consultation with an ophthalmologist or cosmetic surgeon is needed [17,18]. A complete recovery of the signs and symptoms of Bell's palsy is seen in a period of two months among 70-80% patients. A varying degree of residual dysfunction among the other 20-30% patients [19].

It is important that a dentist has adequate knowledge on Bell's Palsy as he may be treating a patient with existing facial palsy, or may be the first medical professional to observe it in a patient, or may be the one to induce iatrogenic reactions causing Bell's palsy to the patient during dental treatment [20]. In a study on Bell palsy's and its clinical significance, it was concluded that knowledge of the anatomy and clinical significance of Bell's palsy may help to make accurate diagnosis and give proper treatment [14].

Conclusion

We found that result regarding knowledge of anatomy, diagnosis and treatment of Bell's palsy was satisfactory and suggest that they have sufficient awareness. Unfortunately, regarding dental consideration of Bell's palsy, the participant lack how to manage patients with Bell's palsy if it is happened immediately after dental procedure. Knowledge of the anatomy and clinical significance of Bell's palsy may help to make accurate diagnosis and provide appropriate treatment. We recommend that dental students and dentists should expose to any medical condition that could be happen because of iatrogenic reason.

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