ARTÍCULO ORIGINAL

Knowledge about von Willebrand's disease among dental students

Conocimiento acerca de la enfermedad de Von Willebrand entre estudiantes de Odontología

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ABSTRACT

Introduction: Von Willebrand's disease is the most common bleeding disorder, and is still underdiagnosed for several reasons, including lack of knowledge about the disease.
Objective: to evaluate the knowledge about dental care for patients with von Willebrand's disease in students who attended the last academic year of an undergraduate dental program.
Methods: a questionnaire with objective questions was applied to 87 students in order to obtain data on the following variables of interest: gender, term of the program, knowledge about the disease, knowledge about the involved coagulation factor, tests for diagnosis, signs and symptoms, procedures necessary during patient care, and medications that should be avoided in von Willebrand's disease. The data were analyzed using IBM SPSS (21.0) at a significance level of 5 %.
Results: only 21 students (21.14 %) reported having some knowledge about von Willebrand's disease: 49.02 % correctly answered that the coagulation factor is involved in von Willebrand's disease, and 29.4 % correctly answered to the question about the diagnostic tests.
Conclusions: students attending the final academic year of an undergraduate dental program have limited knowledge about von Willebrand's disease.

Keywords: dental care; dental education; dental treatment.

RESUMEN

Introducción: la enfermedad de Von Willebrand es el trastorno hemorrágico más común, y todavía está infradiagnosticada por varias razones, incluyendo la falta de conocimiento acerca de la enfermedad.
Objetivo: evaluar el conocimiento acerca del cuidado dental para pacientes con la enfermedad de Von Willebrand en los estudiantes que asistieron al último año de un programa de odontología de pregrado.
Métodos: se aplicó un cuestionario con preguntas objetivas a 87 estudiantes para obtener datos sobre las siguientes variables de interés: género, término del programa, conocimiento acerca de la enfermedad, conocimiento sobre el factor de coagulación implicado, pruebas para el diagnóstico, signos y síntomas, procedimientos necesarios durante el cuidado de pacientes y los medicamentos que deben evitarse en la enfermedad de Von Willebrand. Los datos fueron analizados utilizando IBM SPSS (21.0) a un nivel de significación del 5 %.
Resultados: solo 21 estudiantes (21,14 %) reportaron tener algún conocimiento sobre la enfermedad de Von Willebrand: 49,02 % respondió correctamente cuál es el factor de coagulación que está involucrado en enfermedad de Von Willebrand, y el 29,4 % respondió correctamente a la pregunta sobre las pruebas diagnósticas.
Conclusiones: los estudiantes que asisten al último año de un programa de odontología de grado tienen un conocimiento limitado acerca de la enfermedad de Von Willebrand.

Palabras clave: cuidado dental; educación dental; tratamiento dental.

INTRODUCTION

The Von Willebrand Disease (VWD) is an inherited bleeding disorder that results from quantitative and/or qualitative abnormalities of the Von Willebrand factor (VWF).[1] The VWF has two main functions: binding to subendothelial collagen and platelets, with consequent promotion of platelet plug formation at endothelial injury sites, and binding to and transport of coagulation factor VIII (FVIII), protecting it from proteolytic degradation in the plasma.[2] Individuals with VWD exhibit a high frequency of oral bleeding, especially after surgical procedures and mucosal trauma.[1-3]

Individuals with VWD are at high risk of bleeding during dental procedures, and dentists are thus responsible for their safety, for which purpose they should work jointly with haematologists during the clinical planning of treatments.[3,4]

To provide the best care to patients with VWD, some precautions are needed relative to the prescription of medications and use of anaesthetics as well as during procedures.[5] Dentists should ensure that their offices are equipped with adequate means to control bleeding so that they are available for the treatment of patients with VWD.[3,5,6]

Dental students should be prepared to address patients with bleeding disorders, acquiring sound theoretical bases for their clinical approach to individuals with VWD. Therefore, the aim of the present study was to assess the knowledge that

students attending the last year of an undergraduate dentistry programme had about dental care for patients with VWD.

METHODS

The present quantitative, exploratory and descriptive study was conducted at the Dental Teaching Clinic of the University Centre of João Pessoa, Paraíba, Brazil.

The study was approved by a Human Research Ethics Committee (CAAE: 44659315.5.0000.5176).

A total of 111 students concluding the Dentistry Programme (56 attending the next-to-last and 55 the last term) represented the study population. The calculated sample size (using software Epi Info) was 87 participants, with a margin of error of 5 % and a confidence interval of 95 %. Therefore, a questionnaire containing objective questions was administered to 87 students to gather data on the following variables of interest: gender; programme term; knowledge about VWD; knowledge about the coagulation factor involved in VWD; tests to diagnose VWD; signs and symptoms of VWD; procedures required during care of VWD patients; and medications that should be avoided.

The data corresponding to all 87 respondents, including the subgroup of 51 students who answered all of the questions, were entered into a Microsoft Excel spreadsheet and subjected to descriptive (absolute and percent frequencies) and inferential statistical analyses. On inferential analysis, tests were applied to investigate possible associations between the variables of interest (chi-squared and Fisher' exact tests); the significance level was set to 5 %. All of the analyses were performed in IBM SPSS (21.0).

RESULTS

Eighty-seven students answered the questionnaire; 25 (28.7 %) were male and 62 (71.3 %) female, and 41 (47.1 %) attended the 9th term of the programme and 46 (52.9 %) the 10th term. A total of 66 (75.86 %) students reported not having any knowledge about VWD, whereas 21 (24.14 %) stated they knew about it. Given their lack of knowledge on VWD, 36 (41.3 %) participants chose not to complete the questionnaire; 51 (58.6 %) students completed the questionnaire, including some who had reported not knowing anything about the disease.

In the present study, only 24.14 % of the undergraduate students enrolled in the last year of an undergraduate dentistry programme reported having knowledge about VWD.

Of the students who answered the full questionnaire, 49.02 % correctly answered the question on what VWD is (table 1), indicating that FVIII is the coagulation factor involved; of these, most (64 %) attended the 10 th (last term) of the programme.

Among the participants attending the 10th term, 73.3 % answered this question correctly (table 2).

The results described in table 3 indicate a difference in the responses corresponding to the occurrence of epistaxis and gum bleeding among patients with VWD between the 9th and 10th term students.

The table 4 shows the differences between the answers given by the students attending the last and next-to-last terms of the undergraduate dentistry programme as concerns the care of patients with VWD. Among the 31 students enrolled in the 10th term, 12 (38.70 %) listed the largest number of and most pertinent procedures, compared with only 3 (20.0 %) among the students attending the 9th term.

Relative to the medications that should be avoided for patients with VWD, none of the participants gave the fully correct answer, but many named drugs that are contraindicated in these patients (3,14). This gap in the students' knowledge is noteworthy, as incorrect drug prescriptions might cause bleeding and put the patient's life at risk (table 5).

Table 1. Coagulation factor involved in von Willebrand disease

Variable	Categories	Term		p-value
		9th	10th	
Coagulation factor	Factor X	3 (50.0 %)	3 (50.0 %)	0.490
	Factor VI	8 (47.1 %)	9 (52.9 %)	
	Factor VIII	9 (36.0 %)	16 (64.0 %)	
	Factor XI	0 (0.0 %)	3 (100.0 %)	

Table 2. Tests that might be used to identify Von Willebrand Disease

Variable	Categories	Term		p-value
		9th	10th	
Tests	Coagulation tests	9 (45.0 %)	11 (55.0 %)	0.678
	Blood cell count	2 (66.7 %)	1 (33.3 %)	
	Measurement of coagulation factors	4 (26.7 %)	11 (73.3 %)	
	Coagulation tests and measurement of coagulation factors	5 (50.0 %)	5 (50.0 %)	
	Blood cell count and measurement of coagulation factors	0 (0.0 %)	1 (100.0 %)	
	Coagulation tests and blood cell count	0 (0.0 %)	1 (100.0 %)	
	Coagulation tests, blood cell count and measurement of coagulation factors	0 (0.0 %)	1 (100.0 %)	

Table 3. Main signs and symptoms of Von Willebrand Disease

Signs/Symptoms	Categories	Term		p-value
		9th	10th	
Epistaxis	Yes	2 (12.5 %)	14 (87.5 %)	0.012
	No	18 (51.4 %)	17 (48.6 %)	
Gum bleeding	Yes	12 (31.6%)	26 (68.4 %)	0.046
	No	8 (61.5 %)	5 (38.5 %)	
Amelogenesis	Yes	4 (44.4 %)	5 (55.6 %)	0.724
	No	16 (38.1 %)	26 (61.9 %)	
Ecchymosis	Yes	9 (45.0 %)	11 (55.0 %)	0.497
	No	11 (35.5 %)	20 (64.5 %)	
Xerostomia	Yes	2 (40.0 %)	3 (60.0 %)	0.970
	No	18 (39.1 %)	28 (60.9 %)	
Bleeding	Yes	15 (34.1 %)	29 (65.9 %)	0.086
	No	5 (71.4 %)	2 (28.6 %)	
Menorrhagia	Yes	6 (35.3 %)	11 (64.7 %)	0.685
	No	14 (41.2 %)	20 (58.8 %)	

Table 4. Procedures that should be adopted when treating patients with Von Willebrand Disease

Procedures	Term		p-value
	9th	10th	
Be careful with unattached mucosa and haematoma formation during oral suction	2 (40.0 %)	3(60.0 %)	0.040
Do not perform periodontal bag curettage	1 (100.0 %)	0 (0.0 %)	
Do not perform surgical procedures without haematologist approval	8 (57.1 %)	6 (42.9 %)	
Be careful with unattached mucosa during suction and consult a haematologist	4 (30.8%)	9 (69.2 %)	
Do not perform periodontal bag curettage and consult a haematologist	2 (66.7 %)	1 (33.3 %)	
No sharp film edges, be careful with unattached mucosa during oral suction, do not perform periodontal bag curettage and consult a haematologist	3 (20.0 %)	12 (80.0 %)	

Table 5. Medications that should be avoided for patients with Von Willebrand Disease

Medications	Term		p-value
	9th	10th	
ASA (acetylsalicylic acid)	9 (34.6 %)	17 (65.4 %)	0.164
Dipyrone	1 (100.0 %)	0 (0.0 %)	
Ibuprofen	1 (100.0 %)	0 (0.0 %)	
Aspirin	0 (0.0 %)	2 (100.0 %)	
ASA, dipyrone and aspirin	1 (50.0 %)	1 (50.0 %)	
ASA and aspirin	8 (53.3 %)	7 (46.7 %)	
ASA and paracetamol	0 (0.0 %)	4 (100.0 %)	

DISCUSSION

The Von Willebrand Disease is the most common bleeding disorder, with a prevalence of up to one case per 100 inhabitants,[7] although it is unknown by most clinicians.[8] And, although know, it is underdiagnosed for several reasons,[8] including lack of knowledge about the disease and its clinical presentation among health care providers, unavailability of diagnostic e aren't discussion laboratory tests and technical difficulties in the performance of the diagnostic tests.[3]

Diagnosis of VWD is difficult because is based on laboratory testing and demands persistence from doctors and/or dentists.[1,2] Still, depending on the functional site that is affected, different specific tests are needed to demonstrate the problem, and thus, a complex set of quantitative and functional measurements of VWF and FVIII levels and activity are required.[1,2,9]

The haemorrhagic manifestations typical of VWD include ecchymosis after trauma (even low-intensity trauma), epistaxis (nosebleeds), gum bleeding and menorrhagia.[3,9] Among women, the latter may be the only symptom of disease. In the present study, less than thirty percent of the participants correctly answered the question on the testing needed to detect the disease. While measurement of the levels of coagulation factors is the initial test, it is not the most precise one, and thus, additional, more specific the results assessments are needed to reach conclusive results. Coagulation tests might indicate the presence of a coagulopathy, but neither they nor a blood cell count are able to identify VWD.[1,8]

The occurrence of these conditions "epistaxis" and "gum bleeding" among patients with VWD was mainly reported by the students enrolled in the 10th term. Relative to these particular signs/symptoms, lectures specifically addressing the management of patients with special needs, especially ones with bleeding disorders, are needed because many dental procedures are invasive, and even minimal interventions involve a risk of death in this population of patients.[10-12] According to *Marques et al.*,[5] some precautions are needed to meet the needs of patients with bleeding disorders, particularly as concerns prescription of medications, use of anaesthetics and care during procedures to minimise the occurrence of tissue trauma.

In the case of patients with bleeding disorders, pain associated with dental procedures should be treated with paracetamol or dipyrone derivatives.[5,7,8] Aspirin

and its derivatives are contraindicated due to being platelet aggregation inhibitors. The use of anti-inflammatory drugs is restricted due to their anti-aggregation activity.[13,14] Prescription requires previous consultation with a haematologist.

The present study concluded that students attending the last year of an undergraduate dentistry programme had limited knowledge about von Willebrand disease. The students who had accurate knowledge on what this disease is and how to diagnose it did not know what its signs and symptoms are nor what medications should be avoided when treating patients with it, and these findings applied particularly to the students enrolled in the next-to-last term.

Conflicto de intereses

Los autores no declaran conflicto de intereses.

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