

Awareness of Bleeding Disorder among Dental Professionals

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Abstract

Objective and background

A bleeding disorder is a condition that affects blood clotting. It may be due to metabolic factor or genetic factor. These disorders are related to oral cavity since there is excessive bleeding during the procedures of extraction or even minor surgery. The objective is to analyse the awareness among our dental students and faculty as a questionnaire based analysis.

Material and method

Questionnaire based analysis was done accessing randomly selected 100 dental professionals and results were collected and analyzed.

Results

87% of the professionals are aware of the bleeding disorder. Of the professionals who have come across the bleeding disorder 54.3% of them have managed clinically and 45.7% of them have managed by hospitalization. These were statistically significant.

Conclusion

A better assessment of past medical and dental history, better knowledge about bleeding disorders and its management can help to prevent the complication in the many surgical and dental procedures

Keywords; Awareness, bleeding disorder, management of bleeding disorder

INTRODUCTION

Bleeding disorder is the disorder in which the blood is unable to clot. For the blood to clot it needs many factors and are called as clotting factors. The formation of clot is achieved by cells called platelets. At the site of injury there is accumulation of the platelet plug which maintains the process of haemostasis. The platelet-injured vessel wall interaction involves a series of events that includes platelet adhesion to components of the sub-endothelium, activation and shape change, release of platelet granular contents with subsequent formation of fibrin-stabilized platelet aggregates, and clot retraction^[1]. Any damage to the platelet function results in many types of bleeding. Some of the disorder includes haemophilia, Von Willebrand syndrome, leukemia, and thrombocytopenia. Most of the bleeding disorder occur due to a defect in one or more coagulation factors including fibrinogen, prothrombin, Factor V, combined Factor V and Factor VIII, Factor VII, Factor X, Factor XI and Factor XIII. These bleeding disorders come under two groups Congenital and Acquired. The congenital bleeding disorders include haemophilia, Von Willebrand's disease, rare autosomal recessive disorders (Glanzmann's thrombasthenia and Bernard-Soulier syndrome). The acquired include liver disease and cirrhosis, shock, sepsis or malignancy, renal disease, vitamin c deficiency and Amyloidosis^[2]. Dental procedures involve many surgical procedures such as tooth extraction, flap surgery and many periodontal procedures. In such types the clotting factors and the other normal physiology of the bleeding should be normal for a perfect treatment. So bleeding disorder plays an important role in the dental practice. Periodontal health is of critical importance in patients with bleeding disorders as inflamed and hyperemic gingival tissues are at increased risk of bleeding.

Periodontitis may cause tooth mobility and warrant extraction, which may be a complicated procedure in bleeding disorder patients. In restorative procedures usually there is no complication. This study has attempted to make an analysis of the awareness of the bleeding disorder among dental professionals.

MATERIALS AND METHOD

The study is a questionnaire based study done by accessing the awareness of bleeding disorder among dental professionals. A questionnaire was framed with ten questions and was given to 100 randomly selected dental professionals and students. Students included were undergraduate students of third and final years along with interns. All the data were collected, analysed and computed. A statistics was done by employing chi square analysis with fisher exact test for comparing between qualifications and percentage analysis for multiple response variables. SPSS software version 22.0 was used for the statistical analysis. Then the p value of the results was compared.

RESULTS

The study results show that most of the dental professionals were aware of the bleeding disorder but some professionals are less aware of the complications and the management of the bleeding disorder. The question on basic blood investigation is necessary; positive responses were received from 87% of the professionals (**table 1**). About 75% of the professionals have come across some bleeding disorder in their clinical practice (**table 2**). This was statistically significant. Among the 75% of those who had come across the bleeding disorder 89.3% of them had post operative complication due to various reasons (**table 3**). Of the 75%

of the dental professionals who had post operative complications 53.7% of the cases were clinically managed and 46.3% of the cases were hospitalized (**table 4**). This was statistically significant. About type of investigation necessary 1 % of the first year postgraduate has done only TCDC, 3% of final year undergraduate has done only platelet count; 23% the undergraduate UG students had accessed bleeding and clotting time; 60% of the professionals has done all the three test; 5% of the professionals has done platelet count and bleeding and clotting time; 1% of the undergraduate students has done TC DC and platelet count; 2% of the undergraduate final year student and first year postgraduate has accessed the TCDC and bleeding and clotting time (**table 6**).

Professionals had encountered different types of the bleeding disorders 70.7% of haemophilia, 22.7% of thrombocytopenia, purpura in 10.7% and 1.3% of leukemia cases were observed (**table 7**). Dental professionals who have manage clinically 22% of the professionals have applied pressure, 18% of the professionals have applied pressure followed by local agents were used, 20% of the professionals have applied pressure and then medications with haemostatic drugs, 14% of the professionals have given both local agents and haemostatic drugs, 16% of the professionals have managed only with haemostatic medications, 14% of the person have used all the methods to manage the bleeding (**table 8**).

CHI SQUARE TEST WITH FISHER’S EXTRACT TEST
Table 1 Blood investigation necessary and qualification

Blood Investigation	Basic Qualification							
	Student		BDS		MDS		Total	
	N	%	N	%	N	%	N	%
Yes	33	89.2	25	86.2	29	85.3	87	87.0
No	4	10.8	4	13.8	5	14.7	13	13.0
Total	37	100.0	29	100.0	34	100.0	100	100.0
Fisher's Exact Test			Value	P-Value				
			0.365	0.870				

Table 2 Professionals had any bleeding disorder

Bleeding disorder Patients	Q 01 Qualification							
	Student		BDS		MDS		Total	
	N	%	N	%	N	%	N	%
Yes	20	54.1	24	82.8	31	91.2	75	75.0
No	17	45.9	5	17.2	3	8.8	25	25.0
Total	37	100.0	29	100.0	34	100.0	100	100.0

Chi-Square Test	Value	P-Value
Pearson Chi-Square	14.334	0.001

Table 3 professionals have come across any post-operative complications

post-operative Complication	Qualification							
	Student		BDS		MDS		Total	
	N	%	N	%	N	%	N	%
Yes	18	85.7	23	85.2	27	84.4	68	85.0
No	3	14.3	4	14.8	5	15.6	12	15.0
Total	21	100.0	27	100.0	32	100.0	80	100.0

	Value	P-Value
Fisher's Exact Test	0.121	0.999

Table 4 The type of management

Type of Management	Basic Qualification							
	Student		BDS		MDS		Total	
	N	%	N	%	N	%	N	%
Clinically	0	.0	15	62.5	23	82.1	38	54.3
Hospitalized	18	100.0	9	37.5	5	17.9	32	45.7
Total	18	100.0	24	100.0	28	100.0	70	100.0

	Value	P-Value
Fisher extract test	30.783	<0.001

Table 5 Professionals can manage bleeding disorder in their clinical practice

Manage bleeding disorder patient	Qualification							
	Student		BDS		MDS		Total	
	N	%	N	%	N	%	N	%
Yes	14	100.0	25	92.6	32	97.0	71	95.9
No	0	.0	2	7.4	1	3.0	3	4.1
Total	14	100.0	27	100.0	33	100.0	74	100.0

Chi-Square Test	Value	P-Value
Fisher's Exact Test	1.135	0.588

PERCENTAGE ANALYSIS**Table 6** Type of investigation necessary

Type Of Investigation	Qualification							
	Student		BDS		MDS		Total	
	N	%	N	%	N	%	N	%
Tcdc	0	.0	2	8.0	2	6.7	4	4.5
Platelet count	4	12.1	6	24.0	3	10.0	13	14.8
Bleeding time clotting time	12	36.4	11	44.0	8	26.7	31	35.2
All of the above	21	63.6	11	44.0	20	66.7	52	59.1
Total	33	100.0	25	100.0	30	100.0	88	100.0

Table 7 Type of the bleeding disorder the professionals encountered in their clinical practice

Type of disorder	Qualification							
	Student		BDS		MDS		Total	
	N	%	N	%	N	%	N	%
Hemophilia	15	75.0	16	66.7	22	71.0	53	70.7
Thrombocytopeniapurpura	3	15.0	6	25.0	8	25.8	17	22.7
Leukemia	2	10.0	3	12.5	3	9.7	8	10.7
Others	0	.0	1	4.2	0	.0	1	1.3
Total	20	100.0	24	100.0	31	100.0	75	100.0

Table 8 The measure used by the professionals to manage the bleeding disorder

Measure used to control bleeding	Qualification							
	Student		BDS		MDS		Total	
	N	%	N	%	N	%	N	%
Applying pressure	5	55.6	11	68.8	25	89.3	41	77.4
Use of local agents	2	22.2	7	43.8	4	14.3	13	24.5
Use of systemic haemostatic agents	8	88.9	7	43.8	17	60.7	32	60.4
Total	9	100.0	16	100.0	28	100.0	53	100.0

DISCUSSION

Bleeding disorder is a disorder where there is prolonged bleeding time due to failure in homeostasis. Some medications are taken by some patients for normal flow of the blood [anticoagulants]. Abnormal bleeding or a bleeding disorder can be found in patients who have less platelet activity. There are many factors playing role in the clotting of the blood. Deficiency or any abnormality in the in the factors can lead to excessive bleeding. The bleeding disorder can also be genetically origin. The bleeding

disorder may occur due to one of the following reasons Coagulation factor deficiencies, Platelet disorders, vascular disorders, Fibrinolytic defects.

This study was undertaken to accesses the awareness and the knowledge about bleeding disorder among dental professionals. This study is done for the comparison of the knowledge among the undergraduate and postgraduate students where there will be lot of variation in their treatment. The knowledge and the experience between them will differ. Most of the complications occur in the

student group due to poor knowledge in bleeding disorder. Sometimes if there is enough knowledge about the bleeding disorder also they don't know how to manage the identified bleeding disorder. 87% of the professionals were aware about the bleeding disorder. This was 67% in the study done by Robati R MD et.al . This shows that the theoretical exposure of the professionals to the bleeding disorder is good. Blood investigation is important to detect any type of bleeding disorder in clinical practice. Investigation like bleeding time, clotting time, platelet count is very important. 50% of the professionals have done both the test during investigation. Knowledge on the type of the bleeding disorder is important because the management method will differ for each type of bleeding disorder. Some of the bleeding disorder have interaction with some drugs. So the management should be in such a manner that reduces bleeding and not to increase the bleeding. In case of management according to this study the professionals who had postoperative complication 54.3% of the professionals have managed clinically and the remaining 45.7% of the professionals have managed by hospitalization. This show 54.3% of the professionals had a better knowledge in the management of the bleeding disorder. The remaining 45.7% of the professionals had a poor knowledge about the management of the bleeding disorder. This was contrast with study done by Robati R MD et.al that they accesed 59% of the professionals had managed clinically. This contrast has observed because of the sample of professionals selected; in this study undergraduate and postgraduate students were included, in the study of Robati et.al study it was dental practicers. The management of bleeding disorder can be done by various means some of them include applying pressure, haemostatic agents, local agents, suturing. The best way to control bleeding is the to enhance the platelet activity, by promoting prothrombin in the circulation. The principle agents include administration of platelets for Non-destructive thrombocytopenia, administration of Fresh frozen plasma for active bleeding and Immune globulin deficiency, administration of Cryoprecipitate for Hemophilia A, von Willebrand's disease, when factor concentrates and Fibrinogen deficiency, administration of Factor VIII concentrate for Hemophilia A with active bleeding, administration of Factor IX concentrate for haemophilia, admistration of Desmopressin for active bleeding due to Von-Willebrands disease, administration of Epsilon-aminocaproic acid which act as a promoter for clot formation, administration of Tranexamic acid which has the same effect as epsilon-aminocaproic acid which can be used for any type of bleeding disorder^[10].

For coagulopathies, transfusion of appropriate factors to 50% to 100% of normal levels is recommended when a single bolus infusion is used in an outpatient setting. In patients with hemophilia, additional postoperative factor maintenance may be required after extensive surgeries. This can be done with factor infusion, cryoprecipitate or fresh frozen plasma depending on the patient's condition. But care should be taken to avoid injuring the gingiva while placing rubber dam clamps, matrices and wedges.^[5]

CONCLUSION

The best way to avoid the complication is to take a better case history including past medical n dental history, past drug medications of the patients. The knowledge about each bleeding disorder in the better way of management of the disorder if there is any complication. This study shows a significant level of awareness among the dental professionals.

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