



Assessment of Bleeding Risks and Patient Knowledge Levels About Bleeding Disorders in Patients Referred to the Oral and Maxillofacial Surgery Clinic

Ağız, Diş, Çene Cerrahisi Kliniğine Başvuran Hastalarda Kanama Riskleri ve Hastaların Kanama Bozukluklarına İlişkin Bilgi Düzeylerinin Değerlendirilmesi

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ABSTRACT

Objective: The objective of this study was to examine patients' awareness of bleeding disorders in dental clinics and to identify patients with bleeding disorders using the International Society on Thrombosis and Haemostasis-Bleeding Assessment Tools (ISTH-BAT) bleeding score before dental surgery.

Methods: Using a survey, 389 patients referred to the dental clinic were evaluated for their knowledge of bleeding disorders and their awareness of the diagnosis and treatment of bleeding disorders. The ISTH-BAT score was used to assess the risk of bleeding in the participants.

Results: Of the 389 patients, 194 (49.8%) had heard of bleeding difficulties, whereas 195 (50.2%) had never heard of it. Nearly two-thirds of the 194 patients with low educational levels received information about bleeding diseases, such as hemophilia and Von Willebrand disease, from their doctors and teachers in schools rather than from television or social media. They gave correct answers to detailed questions in the range of 28% to 55% about the definition, diagnosis, and therapy of bleeding disorders. Using the ISTH-BAT score, four (1%) of 389 patients were identified as having bleeding risk. These bleeding disorders were caused by drugs, infections, or other uncommon disorders.

Conclusion: Increasing social media educational activity on bleeding disorders to raise awareness and knowledge in less educated people, as well as the use of ISTH-BAT score to identify a potential bleeder patient, may assist patients planning dental surgery.

Keywords: Bleeding disorders, oral surgery, bleeding risk score, dental practice

ÖZ

Amaç: Bu çalışmanın amacı, diş kliniklerindeki hastaların kanama bozuklukları konusundaki farkındalığını incelemek ve oral cerrahi öncesinde Uluslararası Tromboz ve Hemostaz Komitesi-Kanama Değerlendirme (ISTH-BAT) skorlarını kullanarak kanama riski olabilecek hastaları tespit etmektir.

Yöntemler: Bu çalışmada anket kullanılarak diş kliniğine başvuran 389 hastanın kanama bozuklukları hakkındaki bilgileri ve kanama bozukluklarının tanı ve tedavisi konusundaki farkındalıkları değerlendirildi. Katılımcılardaki kanama riskini değerlendirmek için ISTH-BAT skoru kullanıldı.

Bulgular: Üç yüz seksen dokuz hastanın 194'ünün (%49,8) kanama hastalıklarını daha önce duyduğu, 195'inin (%50,2) ise hiç duymadığı kaydedildi. Eğitim düzeyi düşük olan bu 194 hastanın yaklaşık üçte ikisi hemofili ve Von Willebrand hastalığı gibi hastalıkları duyduklarını ve bu hastalıklar hakkında bilgiyi televizyon ve sosyal medyadan ziyade doktorlarından ve okullarındaki öğretmenlerinden duydukları saptandı. Kanama bozukluklarının tanımı, tanısı ve tedavisi ile ilgili ayrıntılı sorulara hastaların %28 ile %55'i doğru yanıtlar verdi. ISTH-BAT skoru kullanılarak 389 hastanın 4'ünde (%1) kanama riski saptandı. Kanama riskinin sebeplerinin ilaçlar, enfeksiyonlar veya nadir görülen bir hastalığın neden olduğu kanama bozuklukları bulundu.

Sonuç: Daha az eğitilmiş kişilerde farkındalığı ve bilgiyi artırmak için kanama bozukluklarına ilişkin sosyal medya eğitim faaliyetinin artırılması ve potansiyel kanamalı hastayı belirlemek için ISTH-BAT skorunun kullanılması, hastaların diş ve oral cerrahi planlamasına yardımcı olabilir.

Anahtar Sözcükler: Kanama bozuklukları, kanama risk skoru, ağız ve diş cerrahisi

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INTRODUCTION

One of the most common complications in dental practice is bleeding. Patients with hereditary or acquired bleeding disorders are at a higher risk of bleeding during an invasive procedure (1). Although bleeding disorders do not directly affect oral or dental tissues, a limited number of patients who underwent oral and dental procedures were diagnosed with bleeding disorders (2). Thus, the type of dental procedure is critical for the bleeding risk. Except for a few procedures such as simple tooth extraction, canal therapy, or abscess drainage, all other oral and maxillofacial surgery procedures are considered to be high risk in terms of postoperative bleeding (3). Before surgery, a detailed anamnesis should be obtained from the patients, and any history of bleeding should be confirmed with a comprehensive laboratory assessment (4). Primary and secondary hemostatic tests should be performed to diagnose bleeding problems. However, these tests are not available for dental experts. Therefore, people who are at high risk of bleeding should be recognized before dental procedures. To aid with diagnosis, the International Society on Thrombosis and Haemostasis (ISTH) developed Bleeding Assessment Tools (BAT) (5), which is a tool used to record both the presence and severity of bleeding symptoms. Furthermore, patient awareness and knowledge of bleeding disorders are critical for early diagnosis.

The purpose of this study was to analyze the level of knowledge in patients with bleeding disorders and to evaluate the bleeding risks of study participants using the bleeding score in dental surgery.

MATERIALS AND METHODS

This study included patients who were referred to the Gazi University Faculty of Dentistry, Oral and Maxillofacial Surgery Clinic for surgery. This study was approved by the Ethics Committee of the Gazi University Faculty of Dentistry.

The age, occupation, education level, and gender of the participants were recorded. They were asked to complete two questionnaire forms and one ISTH scoring form. The first form was developed to assess participants' demographic data as well as their awareness and understanding of bleeding disorders (Appendix 1). The second form focused on the definition, inheritance, symptoms, physical activity, therapy, and prognosis of patients with bleeding disorders in Table 1. The final form was linked to the participant's ISTH-BAT score at: https://practicalhaemostasis.com/Clinical%20Prediction%20Scores/Formulae%20code%20and%20formulae/Formulae/Bleeding-Risk-Assessment-Score/ISTH_BAT_score.html

This score is related to the patient's previous bleeding symptoms. If the patient has a history of bleeding, they can provide an appropriate response to each question.

The ISTH/SSC BAT consists of a standardized questionnaire and a proposal for a new bleeding score for inherited bleeding diseases. The ISTH-BAT score consists of 14 important topics, including nose bleeding, skin bleeding, minor injury bleeding, oral cavity bleeding, gastrointestinal bleeding, hematuria, tooth extraction, surgery, menorrhagia, postpartum hemorrhage, muscle hematomas, hemarthrosis, intracranial bleeding, and other bleeding. The abnormal range of ISTH-BAT score is ≥ 4 in adult men, ≥ 6 in adult females, and ≥ 3 in children (6). Patients with elevated ISTH-BAT bleeding scores were referred to the Department of Hematology at Gazi University Faculty of Medicine for further evaluation.

Statistical Analysis

All data were statistically analyzed using SPSS version 22.0. Descriptive statistics were used to describe the demographic data of the participants and to demonstrate the distribution of participants in each survey. Chi-square tests were used to compare categorical variables. A significant p-value was defined as <0.05 .

RESULTS

There were 230 (59.1%) women and 159 (40.9%) men among the 389 participants in the study. Their ages ranged from 12 to 79 years, with a median age of 37.9 years. The mean age \pm standard deviation was 40.5 ± 17.2 . There were no significant differences between the participants in terms of age or gender ($p > 0.05$). Demographic data are shown in Table 1.

Participant Responses to Survey-1

It was shown that 194 of the participants (49.8%) had previously heard about bleeding diseases. The remaining 195 participants (50.2%) had never heard of it before. There were no significant knowledge differences among responders ($p > 0.05$). Hemophilia was found to be the most often known disorder, with 65.0% ($n=126$), Hemophilia and von Willebrand disease (VWD) with 23.7% ($n=46$), and others with 11.3% ($n=22$) (Table 2). Regarding bleeding disorders, 43 individuals (22.3%) reported that they obtained information from mass media such as television, radio, and newspapers, 23 people (11.8%) obtained information from social media, 46 people (23.7%) were informed by their physician, and 82 people (42.2%) learned during their school life (Table 3).

Table 1. Demographic data

	n	%
Gender		
Woman	230	40.9
Man	159	59.1
Educational status		
Illiterate	3	0.8
Elementary school	72	18.5
High school	112	28.8
University	179	46.0
Postgraduate	23	5.9
Marital status		
Married	165	42.4
Single	224	57.6
Age group		
12-17	14	3.5
18-24	86	22.1
25-34	86	22.1
35-44	73	18.8
45-54	62	15.9
55-64	41	10.5
65+	27	6.9

Participant Responses to Survey 2

Participants who responded that they had previously heard of these diseases were asked an additional 16 questions in the second survey to assess their awareness and understanding of bleeding disorders. These 16 questions were correctly answered by 48.2% of women and 51.8% of men. There were no significant gender differences among responders ($p>0.05$). It was found that 68.8% of these individuals had elementary and high school education and 31.2% had university education. Three of the 194 participants successfully answered all the questions. These three men were 25, 29, and 49 years old, with two having graduated from university and one having a postgraduate degree. The remaining 191 respondents correctly answered at least one question in each section of the survey. In this group, 45.0% correctly answered questions (1-6) about the definition and inheritance of bleeding disorders, 55% correctly answered questions (7-11) about symptoms and physical activity of bleeding disorders, and 28% correctly answered questions (12-16) about treatment and prognosis of bleeding disorders (Table 4).

Participant Response for ISTH BAT Score

Four (1%) of the 389 participants had high ISTH-BAT scores and were referred to the Gazi University Faculty of Medicine, Department of Hematology for further evaluation. A 21-year-old female patient's bleeding pattern was normal, but she had previously been diagnosed with fibromyalgia. The patient was suspected of using too many NSAIDs for acute joint pain. The second patient was a 35-year-old woman who was administered lithium-containing medicines. The third patient was a 27-year-old man with a history of COVID-19 infection. All three patients had minor platelet dysfunction caused by drugs and infection. The other patient, a 20-year-old woman with a high bleeding score, was consulted because her intraoperative and postoperative bleeding was severe. Pityriasis lichenoides chronica,

an uncommon purpuric and hematological disease, was diagnosed in this patient.

DISCUSSION

A bleeding disorder is characterized by deficiencies or dysfunctions of platelet and/or coagulation factors involved in hemostatic systems (1,2). Patients with this type of disorder are at an extremely high risk of bleeding during trauma or medical procedures (1). Many studies have been published to assess the knowledge levels and bleeding risks of various populations regarding bleeding diseases (7-11). However, no study in the dental literature included both the patients' knowledge level and the bleeding score assessment. Thus, this is the first study to investigate both patients' knowledge level and bleeding score assessment before dental surgery.

There are few studies in terms of the knowledge and awareness of people about bleeding disorders (7-9). Arya et al. (7) published a study in which women with inherited bleeding disorders frequently reported that their medical condition was poorly understood by their healthcare professionals, particularly those working outside of hemophilia treatment clinics. Women who described their experiences in all medical specialties, including emergency departments, said that medical workers generally lacked knowledge of their disease. However, Mantik et al. (8) reported a study in Indonesia to assess teachers' knowledge and awareness about hemophilia. Participants were given 15 explanations of the disease's definition, symptoms, genetic transmission, therapy, complications, and physical activities and were asked to select a true/false choice. Teachers correctly responded to questions about definitions, inheritance, symptoms, and physical activity of hemophilia in the range of 64% to 91%. However, they correctly responded to questions about therapy and complications of hemophilia in the range of 48% to 60%. In that study, nearly all teachers had master's or bachelor's degrees. In contrast to these data, we found that 45% to 55% of patients correctly answered questions about the diagnoses, inheritance, symptoms, and physical activity of bleeding diseases, and 28% correctly answered questions about therapy and prognosis. In our study, most patients' education level was elementary or high school. Our findings suggest that dental professionals, like medical professionals, should be aware of bleeding disorders and obtain an extensive bleeding history from a less informed patient to reduce the risk of bleeding during dental procedures.

The diagnostic value of the ISTH-BAT score has been demonstrated, particularly in individuals with suspected VWD, platelet dysfunction, and other mild bleeding disorders (5,6). Vries et al. (3) used the ISTH-BAT bleeding scoring questionnaire to identify individuals at preoperative bleeding risk. All patients were evaluated for hemostatic diseases. The study indicated that 9-10% of patients had hemostatic bleeding disorder. Cañigral et al. (4) reported that one-third of dental patients were at high risk of bleeding. Using the ISTH-BAT score, we found a decreased rate of bleeding problems at 1% secondary to drugs or infection in three patients. The fourth patient was diagnosed with pityriasis lichenoides, a rare papulosquamous disease of unknown origin. Because of mucosal changes in pityriasis lichenoides, patients were prone to bleeding, which frequently manifested as red-brown scaly papules with hemorrhagic crusts (12). This finding suggests that the ISTH-BAT score can be used to

Table 2. Participants' knowledge of bleeding disease types

Disease type	n	%
Hemophilia	126	65.0
Hemophilia + Von Willebrand disease	46	23.7
Other	22	11.3

Table 3. Participants' major sources of disease information

Information source	n	%
TV, radio, newspaper, etc.	43	22.3
Social media	23	11.8
School education	82	42.2
Physician	46	23.7

Table 4. The percentage of participants who correctly answered at least one question about bleeding disorders

Bleeding disorders findings (questions)	n	%
Definition and inheritance (1-6)	87	45.0
Symptoms and physical activity (7-11)	106	55.0
Treatment and prognosis (12-16)	54	28.0

screen for bleeding risk before dental procedures. In addition, preliminary findings of a social media-promoted online bleeding awareness knowledge translation campaign and BAT have been reported. Undiagnosed bleeding disorders are common in the general population and may indicate serious health risks, particularly in women (9). Our participants learned about bleeding disorders mainly from school or from their doctors. We thought that social media educational activities should be planned to raise awareness of bleeding disorders in our country.

Study Limitations

Our study's limitation was the small sample size. Future research with a large cohort is required.

CONCLUSION

In conclusion, increasing social media educational activity on bleeding disorders to raise awareness and knowledge in less educated people, as well as using the ISTH-BAT score to identify a potential bleeder patient, can be beneficial for patients planning dental surgery.

Ethics

Ethics Committee Approval: This study was approved by the Ethics Committee of the Gazi University Faculty of Dentistry.

Informed Consent: It was obtained.

Peer-Review: Externally peer-reviewed.

Authorship Contributions

Concept: Ö.Ö.G., D.A.Ç., Z.K., N.M., Design: Ö.Ö.G., D.A.Ç., Z.K., N.M., Data Collection or Processing: Ö.Ö.G., D.A.Ç., Z.K., A.Ç., Analysis or Interpretation: Ö.Ö.G., D.A.Ç., Z.K., A.Ç., Literature Search: Ö.Ö.G., D.A.Ç., Z.K., A.Ç., Writing: Ö.Ö.G., D.A.Ç., Z.K.

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Appendix 1. Developed to assess participants' demographic data as well as their awareness and understanding of bleeding disorders

Age:

Gender: Female MaleEducation level: Illiterate Elementary school High school University PostgraduateMarital status: Single Married

Have you ever heard about Bleeding Disorders before?

 No if you answered no, our survey has ended for you. Yes if you answered yes, please continue till the end.**a) Please indicate which ones you know.** Hemophilia Von Willebrand disease (VWD) Other, please explain (.....)**b) Please indicate from which source you got your information.** TV, radio, newspaper etc. Social media School education Physician**Please answer the following questions.**

		Yes	No	No opinion
1.	Blood clotting disorder is one of the infectious diseases.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.	Spontaneous bleeding is a blood clotting problem.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	In these patients, blood can not clot or clotting takes longer than normal.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	The same disease may be seen in the uncle of these patients.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.	There is no history of similar disease in the families of this group of patients.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.	The mental health and development of these patients is normal.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.	When these patients hit something or fall, the bruise does not occur immediately.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.	Sports that require heavy physical contact, such as football, basketball, and wrestling, are not safe for these patients.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.	Bleeding is a major problem in people who doesn't have adequate oral care.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.	Tooth extraction may cause intense bleeding in these patients.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11.	The joints of these patients are stiff and their movements are limited due to untreatable bleeding.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12.	In case of injuries, the first intervention for these patients is the application of ice pressure.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.	The treatment of these diseases is done by replacing the missing factor.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14.	There is no cure for these diseases.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.	It is not a lifelong disease	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16.	These diseases are not causes of death.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Our questionnaire has ended. Thank you for your participation