Research Article

Knowledge and awareness about coagulation disorders among information technology professionals

S. Aishwarya, V. Vishnu Priya*, R. Gayathri

ABSTRACT

Aim: The aim of this research is to find out the knowledge and awareness about coagulation disorder among information technology (IT) professionals. **Introduction:** Normal hemostasis requires the interaction of platelets and the clotting cascade with normal blood vessels and supporting tissues. Bleeding problems and easy bruising are commonly encountered clinical problems. Assessment of these patients is a multistep evaluation process that involves a complete detailed history, thorough physical examination, and relevant laboratory evaluation. **Materials and Methods:** A cross-sectional survey was done among IT professionals regarding their awareness about causation and effects of coagulation disorder. **Conclusion:** There was a lack of awareness among IT professionals about the coagulation disorder.

KEY WORDS: Coagulation disorder, Hemophilia, Thrombosis

INTRODUCTION

Hemostasis is the process by which bleeding is arrested after injury to blood vessels. It is a delicate multiphase process that involves interactions between the blood vessels, platelets, and coagulation factors. A defect in any of these phases of coagulation can result in a bleeding problem which may be inherited or acquired.[1] This process of coagulation is a combination of cellular and biochemical events that function together to keep blood in the fluid state within the vessels and prevent blood loss following injury by the formation of a stable blood clot. Blood clots are eventually dissolved by the fibrinolytic system, a complex but well-regulated system dependent also on several other additional systems.[2] Interaction of these systems includes vessel wall constriction, platelet adhesion and aggregation, blood coagulation, fibrinolytic system, kinin system, natural coagulation factor inhibitors, i.e., mainly antithrombin III, protein C, and protein S, and the complement system. Evidently, there is a delicate controlled balance between formation and dissolution of a blood clot during the hemostatic process. A disruption of this unique balance may cause bleeding or thrombosis.[3,4]

Von Willebrand disease (VWD) is the most common inherited disorder of hemostasis.[5,6] The incidence of VWD in the population is approximately 1%. It is found in all ethnic groups, and in many cases, patients remain undiagnosed. VWD is an autosomal dominant disorder affecting both males and females.[7,8] Before puberty, easy bruising and epistaxis are the most frequently encountered clinical presentations. At the time of puberty, the frequency of epistaxis tends to decrease. In affected females, the chief complaint was menorrhagia.[9] It is estimated that approximately 10% of hysterectomies performed in the United States are the result of underlying occult VWD.[6] With appropriate diagnosis and patient management, many unnecessary surgeries could be eliminated.

The most common acquired inhibitor of coagulation is the lupus anticoagulant (LA).[10] LA is a member of the Anti phospholipid antibody (APA) family. When evaluating patients for potential Anti Phospholipid Antibody Syndrome (APS), it is necessary to do both coagulation testing to identify LA as well as ELISA assays to identify "anticardiolipin antibodies" and antibodies to beta2-glycoprotein I.[11] APAs may be seen in many patient populations, for example, after

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infection and in patients with autoimmune disease.[12] Most APAs seen in the setting of infections have no clinical complications. However, a large percentage of APA patients with underlying autoimmune disease present with thrombotic complications involving both the arterial and venous circulation, as well as recurrent fetal loss/spontaneous abortion in women. APA syndrome is diagnosed based on the presence of clinical complications (e.g., thrombosis or recurrent *spontaneous abortion) and positive laboratory testing for LA and/or anticardiolipin antibodies.

MATERIALS AND METHODS

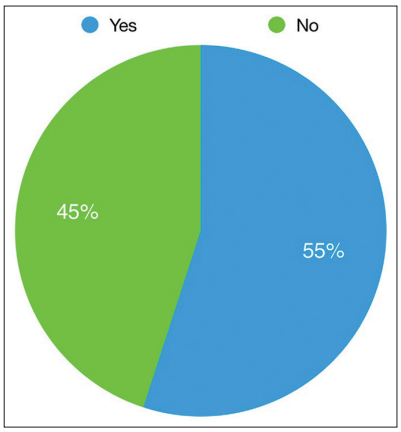
A cross-sectional survey was conducted among information technology (IT) professionals of sample size 100, about their knowledge and awareness about coagulation disorders. A self-administered questionnaire was prepared and distributed to IT people through online survey link, and the questionnaire includes:

Questionnaire

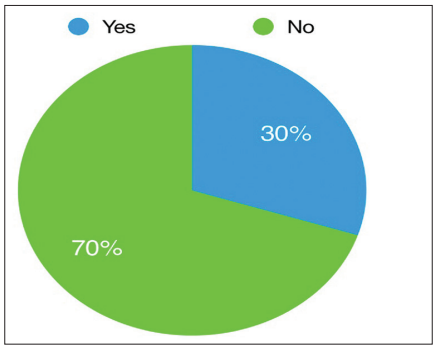
1) Are you aware about the term coagulation (clotting) disorder?
   a) Yes
   b) No
2) Have you come across anyone with coagulation disorder?
   a) Yes
   b) No
3) What is the normal clotting time?
   a) 3–5 min
   b) 5–7 min
   c) 8–10 min
4) What is the first step you do to stop the bleeding in fresh cut wounds?
5) Are you aware about the origin of coagulation disorder?
   a) Inherited
   b) Acquired
   c) Both a and b
6) Are you aware about any known clotting disorders?
7) Do you think Vitamin K deficiency has any contribution for blood coagulation?
   a) Yes
   b) No
8) Risk of blood clot increases in which age group of people?
   a) 20–30 years
   b) 31–40 years
   c) 41–50 years
   d) 51–60 years
9) What can be the possible symptoms of coagulation disorders?
   a) Itchy reddish brown discoloration of the skin
   b) Breathlessness
   c) Wheezing
   d) Stroke
   e) All the above
10) When performing a bleeding time, the usual puncture site is the
   a) Finger
   b) Forearm
   c) Heel
   d) Earlobe
   e) Big toe
11) Does application of antibiotics can reduce infection in bleeding wounds?
   a) Yes
   b) No
   c) Don't know

RESULTS

Graph 1 represents that 55% of individuals were aware about coagulation disorder, Graph 2 represents that 30% of individuals have come across people with coagulation disorder, Graph 3 represents that 60% of the individuals were not aware that Vitamin K contributes in clotting mechanism, Graph 4 represents that 60% of individuals say that finger is the most common site for blood puncture, whereas 30% say that for forearm, 6% say that it is earlobe, and 4% say that it is big toe, Graph 5

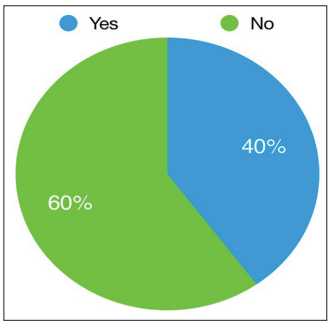


Graph 1: Are you aware clotting disorders

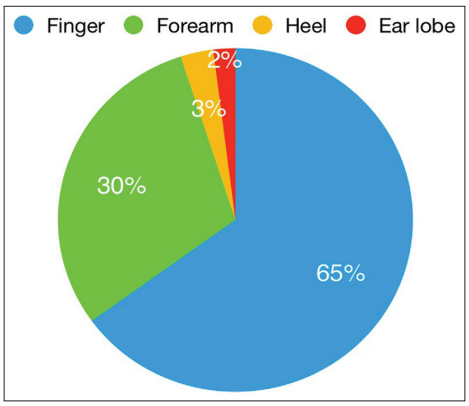


Graph 2: Have you come across anyone with coagulation disorder

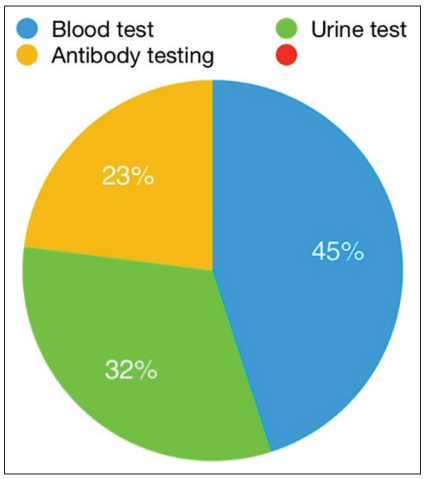
depicts that 45% of individuals suggest that blood test was the preferred option, 32% believed that urine test and 23% believed that antibody test was the preferred option. Graph 6 depicts that 32% of participants felt brown discolouration of skin and 16% felt wheezing as the possible option. Graph 7 represents that 92% of individuals were aware that antibiotics are essential in reducing infections in bleeding wounds, and Graph 8 represents that only 25% of the individuals were aware that origin of coagulation disorder can be both acquired and inherited.



Graph 3: Vitamin K deficiency contribution for clotting factor



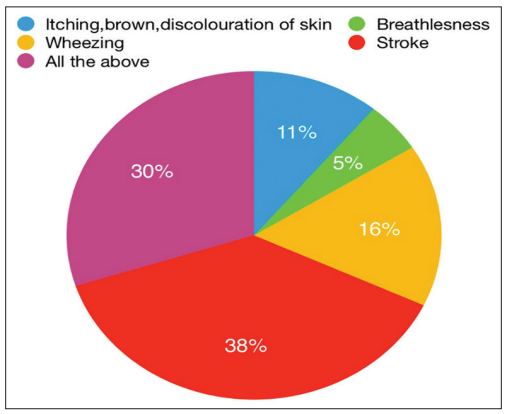
Graph 4: Common puncture site for blood collection



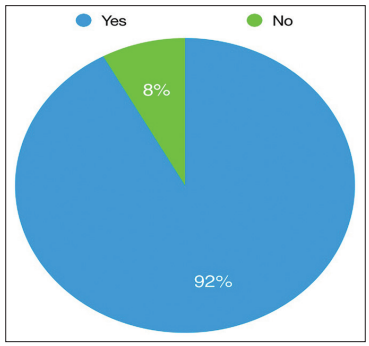
Graph 5: Possible diagnosis for clotting disorder

DISCUSSION

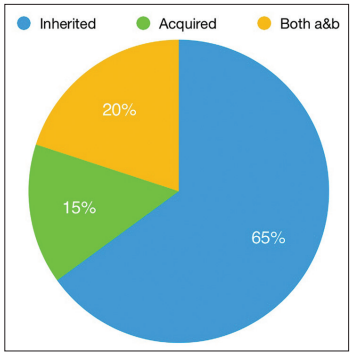
From the result presented above, it is evident that, although IT professionals were aware about the term coagulation disorder, they do not have a clear prospective of idea about its origin and their basic mechanism cascades. von Känel said that stress-induced activation of the sympathoadrenal medullary system activates both the coagulation and fibrinolysis systems resulting in net hypercoagulability.[13] von Känel also said that mental stress and depression are characterized by a hypercoagulable state, which might mediate the increased coronary risk in individuals who feel stressed or depressed.[14] Shapiro *et al*. said that rare coagulation disorders (RCDs) present a considerable



Graph 6: Symptoms of coagulation disorder



Graph 7: Does application of antibiotic reduce infection in bleeding wounds



Graph 8: Origin of coagulation disorder

and multifaceted public health risk. Although inherited RCDs affect a minor segment of any local health-care delivery system, their global impact is major and highlights the challenges of delivering health-care services to any rare disease population. These include but are not limited to: (1) a general lack of knowledge about and familiarity with the genetic and clinical implications of the disorder among affected patients and both urgent and specialty care providers; (2) the potential for preventable morbidity and mortality related to delayed diagnosis and treatment; (3) the lack of safe and effective therapies; and (4) minimal research activity to establish and improve standards of care.[15]

CONCLUSION

Coagulation disorders are disruptions in the body's ability to control blood clotting. Coagulation disorders can result in either a hemorrhage (too little clotting that causes an increased risk of bleeding) or thrombosis (too much clotting that causes blood clots to obstruct blood flow). From this study, we can conclude that although IT people are aware about the term coagulation disorder and its effects and causes, they were not aware that coagulation disorder is also an acquired disorder and stress could be one of the important factors in acquired coagulation disorder.

REFERENCES

1. Handin RI, Lux SE, Stossel TP. Blood Principles and Practice of Hematology. Philadelphia, PA: JB Lippincott Company; 1995. p. 9-72.
2. Ogedegbe HO. An overview of hemostasis. Lab Med 2002;12:948-53.
3. Bashawri LA, Ahmed MA. The approach to a patient with a bleeding disorder: For the primary care physician. J Family Community Med 2007;14:53-8.
4. Sharma N, Gulati S, Mehta S, Mehta S. An Approach to a Patient with Bleeding Disorder. Clinlcal Guide I; 2017. p. 339-43.
5. Triplett DA. Coagulation and bleeding disorders: Review and update. Clin Chem 2000;46:1260-9.
6. Murray EW, Lillicrap D. Von willebrand disease: Pathogenesis, classification, and management. Transfus Med Rev 1996;10:93-110.
7. Kouides PA. Females with von willebrand disease: 72 years as the silent majority. Haemophilia 1998;4:665-76.
8. Nichols WC, Ginsburg D. Von willebrand disease. Medicine (Baltimore) 1997;76:1-20.
9. Werner EJ. Von willebrand disease in children and adolescents. Pediatr Clin North Am 1996;43:683-707.
10. Triplett DA, Brandt J. Laboratory identification of the lupus anticoagulant. Br J Haematol 1989;73:139-42.
11. Triplett DA. Assays for detection of antiphospholipid antibodies. Lupus 1994;3:281-7.
12. Triplett DA. Screening for the lupus anticoagulant. Ric Clin Lab 1989;19:379-89.
13. von Känel R. Acute mental stress and hemostasis: When physiology becomes vascular harm. Thromb Res 2015;135:S52-S55.
14. von Känel R. Changes in blood coagulation in stress and depression from evolution to gene regulation. Ther Umsch 2003;60:682-8.
15. Shapiro AD, Soucie JM, Peyvandi F, Aschman DJ, DiMichele DM, UDC Rare Bleeding and Clotting Disorders Working Group. *et al.* Knowledge and therapeutic gaps: A public health problem in the rare coagulation disorders population. Am J Prev Med 2011;41:S324-31.

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