ISSN: 0975-3583,0976-2833 VOL12, ISSUE3, 2021

Original Research Article

To determine the hematological findings & coagulation profile in patients with bleeding manifestations

Dr Hemlata Bamoriya[1] (Assistant Professor), Dr. Geeta Devi[2] (Assistant Professor) & Dr. Gautam Chandrakoshi[3] (Demonstrator)

Dept. of Pathology, SRVS Medical College, Shivpuri, M.P.[1]
Dept. of Pathology, BMGMC, Shahdol, M.P.[2]
Dept. of Pathology, Shyam Shah Medical College, Rewa, M.P.[3]

Corresponding Author: Dr Hemlata Bamoriya

Abstract:
Background & Method: The aim of study is to determine the hematological findings & coagulation profile in patients with bleeding manifestations. Bleeding time is a blood test that looks at how fast small blood vessels close to stop bleeding. This test helps diagnose bleeding problems. Pre-requisites-Certain medications including dextran, nonsteroidal anti-inflammatory drugs (NSAIDs), and salicylates (including aspirin) may change the test results. So the patient should be told to stop taking these medicines if any, a few days before the test.
Result: The most prevalent hematological disorder is found to be Idiopathic thrombocytopenic purpura (23%), aplastic anemia (14%), Systemic causes (11%) while Myelodysplastic syndromes & Hemophilia have equal prevalence rate (7%). Among the bleeding disorders platelet disorders (74%) are more common than coagulation disorders (15%). Inherited bleeding disorders involve males (17%, n=104) more commonly than females (6%, n=96). However statistically no gender association could be obtained in inherited bleeding disorders as $P = 0.125$ ($P > 0.05$).
Conclusion: Study shows the highest prevalence of bleeding disorders that is 27% in the age group of 11-20 years while lowest 5% above 60 years of age. Males are found to be affected slightly more commonly (52%) than females (48%). The most prevalent hematological disorder is Idiopathic thrombocytopenic purpura (23%) followed by aplastic anemia (14%), Systemic causes (11%) Myelodysplastic syndromes (7%). & Hemophilia (7%). Of all the bleeding disorders, platelet disorders (74%) are more common than coagulation disorders (15%).

Keywords: hematological findings & coagulation profile in patients with bleeding manifestations.

Study Designed: Observational Study.

ISSN: 0975-3583,0976-2833 VOL12, ISSUE3, 2021

1. INTRODUCTION

The human body cannot handle excessive blood loss well. Therefore, the body has ways of protecting itself. Hemostatis is one of them. When, for some unexpected reason, sudden blood loss occurs, the blood platelets kick into action.
When bleeding from a wound suddenly occurs, the platelets gather at the wound and attempt to block the blood flow. The mineral calcium, vitamin K, and a protein called fibrinogen help the platelets form a clot.
A clot begins to form when the blood is exposed to air. The platelets sense the presence of air and begin to break apart. They react with the fibrinogen to begin forming fibrin, which resembles tiny threads. The fibrin threads then begin to form a web-like mesh that traps the blood cells within it. This mesh of blood cells hardens as it dries, forming a clot, or "scab."
Bleeding disorders constitute an important group of disorders in haematology. Abnormalities of platelet function & clotting factors are characterized by clinical bleeding of varying severity. All diseases of inadequate hemostasis have spontaneous bleeding (petechiae, purpura, mucous membranes, GI bleeding, hematuria, into joint spaces, or even just unusually heavy periods) and/or excessive bleeding after trauma or surgery. The hemostatic system consists of platelets, coagulation factors, and the endothelial cells lining the blood vessels.

2. MATERIAL & METHOD

The present study is hospital based prospective being undertaken in the Department of pathology (hematology). The cases presenting with bleeding manifestations in OPDs of SRVS MEDICAL COLLEGE, SHIVPURI, M.P. from February 2020 to March 2021.
Bleeding time is a blood test that looks at how fast small blood vessels close to stop bleeding. This test helps diagnose bleeding problems. Pre-requisites-Certain medications including dextran, nonsteroidal anti-inflammatory drugs (NSAIDs), and salicylates (including aspirin) may change the test results. So the patient should be told to stop taking these medicines if any, a few days before the test.
A blood pressure cuff inflates around the upper arm of patient. While the cuff is on the arm, a prick is given on the fingertip. It is just deep enough to cause a tiny amount of bleeding. The blood pressure cuff is immediately deflated. Blotting paper is touched to the cuts every 30 seconds until the bleeding stops. The time taken for the cuts to stop bleeding is recorded.

3. RESULTS

Table 1: Age in Years

Age in Years	**Number of cases**	**%(n=200)**
0-10	24	12
11-20	54	27
21-30	48	24
31-40	32	16

ISSN: 0975-3583,0976-2833 VOL12, ISSUE3, 2021

41-50	18	9
51-60	14	7
>60	10	5

Out of the 200 Study cases, bleeding disorders are most common 27%, (n=200) in age group 11-20 years, while least common 5% (n=200) in cases above 60 years of age.

Table 2: Hematological disorders

Hematological disorders	**Total no. of cases**	**% (n=200)**
Idiopathic thrombocytopenic purpura	46	23
Aplastic anemia	28	14
Myelodysplastic syndrome	14	7
Acute myeloid Leukemia	08	4
Acute lymphoid Leukemia	12	6
Chronic myelogenous leukemia	04	2
Chronic lymphoblastic leukemia	02	1
Non Hodgkins lymphoma	02	1
Sickle cell anemia	10	5
Hemophilia	14	7
Malaria	08	4
Disseminated Intravascular coagulation	02	2
Nutritional anemia	06	3
Drug induced thrombocytopenia	04	2
Chemotherapy induced bone marrow suppression	04	2
Liver disease	10	5
Vitamin K deficiency	02	1
Other systemic causes	22	11
Total	200	100

The most prevalent hematological disorder is found to be Idiopathic thrombocytopenic purpura (23%), aplastic anemia (14%), Systemic causes (11%) while Myelodysplastic syndromes & Hemophilia have equal prevalence rate (7%).

Table No. 3: Type of bleeding disorder

Type of bleeding disorder	**Total number of cases**	**%**
Platelet disorders	148	74
Coagulation disorders	30	15
Other Systemic causes	22	11
Total	200	100

Among the bleeding disorders platelet disorders (74%,n=200) are more common than coagulation disorders (15%,n=200).

ISSN: 0975-3583,0976-2833 VOL12, ISSUE3, 2021

Table No. 4: Inherited Bleeding Disorders

Bleeding disorders	Males	% of males (n=104)		% of females (n=96)
Inherited	18	17		6
Acquired	86	83		94
Total	104	200	96	100

Inherited bleeding disorders involve males (17%, n=104) more commonly than females (6%, n=96). However statistically no gender association could be obtained in inherited bleeding disorders as $P = 0.125$ ($P > 0.05$).

4. DISCUSSION

This study has been undertaken on patients of all age groups including the neonates. In our study of 200 cases, where 52 (52%) are males while 48 (48%) are females, highest prevalence of bleeding disorders 27% is found between 11-20 years of age.
Our study had similar results as given by 1D. Jain, V. Raina et al where bleeding disorder was most commonly seen in the patients that fall in the age group of 11-20 years.
Similar findings with 44% cases between 12–20 years of age where 60% affected males & 40% affected females were found in study by Saqib Malik, Iram Sarwar et al conducted in Abbottabad, over a one year period.
Idiopathic thrombocytopenic purpura (41.2%) was also the most common cause found in a retrospective study of thrombocytopenic patients, performed by Sunil R Bahl, Thomas A Vurgese, at Jahra hospital during 2003-2004. The other common causes included chronic liver disease (12.7%), Heparin induced thrombocytopenia (7.9%), DIC and leukemia (6.3% each), aplastic anemia (3.3%) & Myelodysplastic syndromes (1.6%). Females (64.7%) were found to be affected with Idiopathic thrombocytopenic purpura 1.8 times more commonly than males (35.3%).
Jennifer A. Bevan, Kelly W. Maloney retrospectively reviewed the charts of cases who presented with menorrhagia between January 1990 and November 1998 found that the most common causes were immune thrombocytopenic purpura followed by myelosuppression caused by chemotherapy. E. Oral, A. Çağdaş, A. Gezer et al found the same results as our study where out of 7 diagnosed cases presenting with acute menorrrhagia, 4 (57%) cases were of immune thrombocytopenic purpura, two cases of Van Willebrand disease and one case of acute promyelocytic leukemia.

5. CONCLUSION

Study shows the highest prevalence of bleeding disorders that is 27% in the age group of 11-20 years while lowest 5% above 60 years of age. Males are found to be affected slightly more commonly (52%) than females (48%). The most prevalent hematological disorder is Idiopathic thrombocytopenic purpura (23%) followed by aplastic anemia (14%), Systemic causes (11%) Myelodysplastic syndromes (7%). & Hemophilia (7%). Of all the bleeding disorders, platelet disorders (74%) are more common than coagulation disorders (15%).

ISSN: 0975-3583,0976-2833 VOL12, ISSUE3, 2021

6. REFERENCES

1. Bowen DJ: Haemophilia A and haemophilia B: molecular insights. Mol Pathol 2002; 55:1
2. Angela M. Cheung et al. (2008), Vitamin K Supplementation in Postmenopausal Women with Osteopenia (ECKO Trial): A Randomized Controlled Trial, Bunyaratavej N (2007). "[Experience of vitamin K2 in Thailand]" (in Japanese). Clin Calcium 17 (11): 1752–60.
3. Harrison P, Horton A, Grant D, et al. Immunoplatelet counting: a proposed new reference procedure. Br J Haematol.2000;108:228-235.
4. Grimnes G, Isaksen T, Tichelaar YIGV, Brox J, Brækkan SK, Hansen JB. C-reactive protein and risk of venous thromboembolism: results from a population-based case-crossover study. Haematologica. 2018;103(7):1245-1250.
5. Zhang C, Zhang Z, Mi J, et al. The cumulative venous thromboembolism incidence and risk factors in intensive care patients receiving the guideline-recommended thromboprophylaxis. Medicine (Baltimore). 2019;98(23):e15833.
6. Sharma N, Gulati S, Mehta S, Mehta S. An approach to a patient with Bleeding Disorder. In: Hematology the Education Program of the American Society of Hematology American Society of Hematology Education Program [Internet]; 2016. p. 339–43.
7. Patel SM, Gupta S, Patel MM, Mahadik JD, Patel KA, Patel AS. A study of coagulation profile in neoplastic conditions. International Journal of Medical Science and Public Health. 2016;5(3):402–8.
8. Mokhtar GM, Tantawy AA, Adly AA, Telbany MA, El Arab SE, Ismail M. A longitudinal prospective study of bleeding diathesis in Egyptian pediatric patients: single-center experience. Blood Coagul Fibrinolysis. 2012;23(5):411–8.
9. Muciño-Bermejo J, Carrillo-Esper R, Méndez-Sánchez N, Uribe M. Thrombosis and hemorrhage in the critically ill cirrhotic patients: five years retrospective prevalence study. Ann Hepatol. 2015;14(1):93–8.