Original article:

Study of bleeding and clotting disorders in children

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Abstract:

Introduction: Our aim was to Study Bleeding And Clotting Disorders In Children

Material and Methods: 100 patients of age group 0 to 12 yrs having haemorrhagic manifestation (either symptoms or signs) admitted in pediatric ward were included. Detailed history and examination done. Routine and specific investigation were done as per the need.All patients were treated and outcome of these patients studied.

Results: Commonest age group of these patients was of 6 to 12 yrs. Of vascular disorder, petechae and purpura was seen in 100% cases as in platelet disorder(46.3%). Of Congenital coagulation disorder easy bruising(52.4%) and of acquired gastrointestinal bleed(30.3%) was commonest. Of etiological analysis acquired coagulation disorder(39%) was followed by platelet disorder (35%), Congenital coagulation disorder(23%) and vascular disorder(3%). Mortality was highest in acquired coagulation disorder.

Conclusion: On these cases of bleeding and clotting disorder, acquired coagulation disorder was commonest and majority cases are of disseminated intravascular coagulation. Mortality was also highest in this group.

Introduction

Haemorrhage as a manifestation of disease was known since the day is of Hippocrates who was the first to describe idiopathic thrombocytopenic purpura(1). Current concepts of haemostasis have evolved from the earliest reports on the formation of the initial haemostatic plug(1)(2). In the 1980`s and early 1990`s two major further developments have occurred. First is the wide acceptance of natural and fundamental role of blood rheology in haemostasis. Second is the discovery that much of plasma phase of coagulation actually is modulated by vascular endothelium(3).Previously before the advent of the various diagnostic and therapeutic measures patients with coagulation disorders or many other bleeding disorders used to die because of uncontrollable massive bleeding. But in present situation with good preventive care and supportive management during bleeding episodes, immediate threat to life can be minimised and such children can have fairly normal life. For this the diagnosis of underlying disorder is of almost important(4)(5).

This study was undertaken to find out common cause of bleeding disorder in 100 patients presenting with haemorrhagic manifestations.

Material and methods

This study was undertaken in 0 to 12yrs of patients in department of paediatrics during period of Jan 2012 to 2013. Patient presenting with haemorrhagic manifestation either symptoms or signs were included. Also those in whom haemostatic abnormality was detected after hospitalisation were included. After admission detail history and clinical examination was done. Baseline investigations and blood test were done in all patients. These are haemoglobin ,total and differential leucocyte count

,chest X-ray, blood culture, LFT, etc. Special investigations were carried out like prothrombintime, a PTT, clot retraction test, antiplatelet antibody test, FDP factor assays,etc. Other investigations like KFT, Bone marrow examination, bleeding and clotting time done.

After investigations patients were diagnosed of either bleeding or clotting disorders. These patients were treated with blood and blood components transfusion, platelet transfusion, factor XIII or IX transfusion, FFP transfusion. Patients were treated with antibiotics, intravenous fluid and ventilator support as per the need. All patients were treated as per the diagnosis and need. These patients were studied for their various haemorrhagic manifestation. Study outcome was noted as survival or mortality.

Results:

The general characteristics of these patients were as shown in table 1

Sr.no.	General characteristics	Results
1	Age	
	0 to 1 yr	n = 22 (22%)
	1 to 5 yrs	n = 33 (33%)
	6 to 12 yrs	n = 45 (45%)
2	Sex	
	Male	50 cases (50%)
	female	50 cases (50%)
3	Haemorrhagic manifestation	
	A) In vascular disorder	
	Petechiae and purpura	100%
	B) In platelet disorder	
	i)Petechiae/ purpura/ecchymosis	46.3%
	ii)malena and gum bleeding	30.7%
	iii)epistaxis	23%
	C) In congenital coagulation disorder	
	i)easy bruising	52.4%
	ii)epistaxis and haemarthrosis	23.8%
	iii)haematomas	23.8%
	D) In acquired coagulaton disorder	
	i)gastrointestinal bleeding	30.3%
	ii)Petechiae/ purpura/ecchymosis	30.3%
	iii) epistaxis	18.2%
	iv) gum bleeding and haematuria	21.2%

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In this study commonest age group affected was 6 to 12 yrs(45%) and there is equal distribution of cases in males and females. Petechiae and purpura was commonest manifestation in vascular and platelet disorders. In congenital and acquired coagulation disorders easy bruising (52.4%) and gastrointestinal bleeding and petechiae/purpura (30.3%) was commonest respectively. On analysis of etiological classification of these 100 cases, vascular disorder were 3% and platelet disorder were 35% of coagulation disorder, congenital disorder were 23% and acquired disorder were 39%.

Etiological subdivision of various disorders were shown in table no.2

A) Of vascular disorders

Etiology	Number	Percentage
Henoch-Schonleinpurpura	3	100%

Comments:

In this study, Henoch-SchonleinPurpura was common vascular disorder with 100%

B) OF Platelet disorders:

Etiology	Number	Percentage
Idiopathic thrombocytopenic purpura	17	48.57%
Acute Leukemia	9	25.72%
Aplastic Anaemia	4	11.42%
Black Measles	2	5.72%
Thrombosthenia	1	2.85%
Enteric Fever	2	5.72%
Total	35	100%

Comment:

The above table shows of platelet disorders, idiopathic thrombocytopenic purpura accounted for 48.57% forming the commonest disorder.

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C) Of Congenital coagulation disorders:-

Etiology	Number	Percentage
Haemophilia A	7	30.44%
Von-Willebrand's disease	16	69.56%
Total	23	100%

Comment:

Von-Willebrand's disease was commenst accounting for 69.56%.

D) Of acquired coagulation disorders

Etiology	Number	Percentage
Disseminated intravascular coagulation	30	76.92%
Parenchymal liver disease-Vitamin K deficiency	5	12.83%
a) Haemorrhagic disease of newborn	3	7.69%
b) Biliary atresia	1	2.56%
Total	39	100%

Comment:

In this study of acquired coagulation disorders,the most common disorder was disseminated intravascular coagulation with 76.92%. In this study, out of 100 cases that were enrolled,total 22 died. No death was noted in vascular or congenital coagulation disorder. One death was noted of platelet disorder having acute leukemia with DIC. 21 deaths were in a group of acquired coagulation disorder of which DIC was commonest cause(53.33%).

Discussion:

Of vascular disorders ,3 cases Henoch-SchonleinPurpura were of age 9 to 10 yrs and purpuric rash was seen. These findings were same as the study done by A.Bagga(6). Of platelet disorder,17 cases were of ITP(48.57%) followed by acute leukemia and aplastic anaemia. In ITP cases mean age group was 3-12 years. All have petechiae except one.In the study done by Mansoor El Mauhoub(7) mean age was 4.1 years and all patients presented with petechiae. In study of congenital coagulation disorder Von-Willebrand's disease (69.56%) and Haemophilia A(30.44%) were seen. Out of 7 patients of Haemophilia, 5 had haematoma

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and 2 had gum bleeding. According to the study done by Mehta B.C. findings were similar(8). In Von –willebrand's cases, nasal bleeding was chief complaint in 13 cases. In study done by Inga Marie Nilsson(9) mucosal bleeding as epistaxis, gum bleeding was commonest.

In study of acquired coagulation disorder DIC was commonest cause in 30 cases. Out of this 14 cases were of neonatal sepsis. This findings are consistent with other studies(10,11,12). Patients with parenchymal liver diseases (12.83%) of this group had 60% mortality which is similar in other studies(13). In this study, mortality was maximum in this group of acquired coagulation disorder with maximum no. of cases with DIC which is similar to the other studies(10,14). In this group 3 cases were of haemorrhagic disease of newborn of late variety and received vitamin Kat birth(15).

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