

Study of the Fibrinolytic Parameters in the Different Types of Polycythemia in Al –Nasirya City

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Abstract

Thrombohemorrhagic difficulties are a noteworthy reason for horribleness and mortality in patients with polycythemia, The pathogenesis of these confusions isn't totally cleared up, Several examinations have depicted anomalies of red platelets and platelets in these patients. An expansion in Hb levels, hematocrit or unquestionably the quantity of red platelets might be proof of polycythemia, Much more usually, in any case, erythrocytosis is because of a fundamental non-hematological sickness, We watched a companion for patients (27)with PV, auxiliary erythrocytosis, and basic thrombocytopenia for coagulation and fibrinolytic parameters, tallying (EIT), D-dimer, and also α_2 hostile to plasmin, 10 from the 27 of the patients industrialized at least one of the thrombotic issues through the investigation, The clinical relationship between's the viewed as limits and the entanglements, Three from the patients one of every accumulation, with raised serum α_2 against plasmin positions, built up economical blood vessel or venous thrombosis.

INTRODUCTION

polycythemia vera (PV) is perpetual myeloproliferative scatters that share normal pathogenetic anomalies of bone marrow immature microorganism expansion. Atypical element of PV is a hemostatic lopsidedness bringing about expanded hazard for both thrombotic and hemorrhagic events¹. Arterial and venous thromboembolism are the real reasons for grimness and mortality in these patients (roughly 40%)². These occasions have been credited to quantitative and subjective anomalies of red platelets and platelets emerging from the clonal modification of hematopoietic cells. The significance of uncontrolled polycythemia as a hazard factor for thrombosis in these patients has been set up. The job of thrombocytosis is still debated³, however ongoing proof demonstrates that a decrease in platelet tally is related with diminished thrombotic chance in polycythemia vera patients accepting hydroxyurea⁴. Numerous platelet deserts have additionally been distinguished, including strange platelet morphology, obtained capacity pool ailment, platelet film variations from the norm, and anomalous arachidonic corrosive metabolism⁵. Causal connections between any of these particular irregularities and either draining or thrombosis have not been plainly established⁶. as opposed to red platelets and platelets, no investigations have been led on white platelets (WBCs), which can conceivably be associated with the thrombotic diathesis of these patients. Increments in WBC check, run of the mill of most patients with PV, can be imperative in the pathogenesis of a thrombophilic state, As revealed by epidemiologic investigations in patients with coronary heart and fringe blood vessel maladies, high WBC tally is related with improved thrombotic risk^{7,8}, the demonstrated an imminent qualified investigation of the fibrinolytic framework from the certain modules in patients with (PV), basic of (ET), and optional of (SE), and watched for a possible association amid as far as possible and the expansion of thrombohemorrhagic workings amidst these patients.

METHODS AND MATERIAL:

Patients

Sixty back to back patients with polycythemia vera (PV) range(20-over 50) years going to the outpatient centers at

our hematology office entered the examination.. Determinations of PV were made by normally acknowledged clinical and research center criteria^{9,10} A gathering of sixty-coordinated solid subjects of tantamount age range(20-over 50) years went about as a control aggregate for the lab parameters examined. The typical control assemble was enlisted from solid grown-ups without history of thrombo-hemorrhagic occasions, Composed educated assent was gotten from every individual, None had side effects of dynamic contaminations or provocative illnesses, nor had any occupied with physical exercise.

Ten patients with PV were not getting any treatment for PV. Thirteen patients with PV were managed hydroxyurea (HU), fourteen patients with PV were directed HU and ibuprofen, fourteen patients with PV were controlled headache medicine, and six patients with PV experienced phlebotomy at least 2 times each year. Three patients with PV had thrombotic indications in the past those had extreme cerebral ischemic assaults.

Routine hematologic assays

White platelet (WBC) differential check, hematocrit, hemoglobin, red platelet (RBC), and platelet counts were directed by means of robotized methodologies using a NE800 Analyser (Dasit, Milan, Italy).

Dismembers of PV and ET were seen on the statement of the polycythemia vera consider gathering criteria^{11,12}, raised erythrocyte mass, non-appearance of iron come up short on, no chromosome of Philadelphia, the bone marrow of the fibrosis are not found, and no known reason behind the erythrocytosis or for the oversensitive thrombocytosis, the sample of the Patients with PV, ET, or SE were either protected with the chemotherapy or the phlebotomy, or were normal during that time improvement, No one from the patients standard anti-coagulant or anti-platelet treatment at the period of examination, Blood checks were practiced on new (EDTA) which are mixed the blood with the counter of the STKS cell (Coulter Corporation, Hialeah, FL), For the trainings of coagulation, a mixed blood was with one tenth volume of 3.8% Citrosodine and plasma was isolated after the process of centrifugation at 300 rpm for (20) min at (4°C), All the amount of plasma of tests were

kept at temperature (-70°C) until charity, Pro-thrombin time (PT), scarce thromboplastin time (PTT) and the fibrinogen stages were dauntless by an ACL 1000 coagulometer (Instrumentation Laboratory, Barcelona, Spain), For the arrangement of the fibrinolysis, blood was unpleasant speedily around the start of the day because of the circadian varieties of beyond what many would consider possible, the test of the D-dimer was developed by the Latex of the methodology .

Euglobulin Lysis Test (Elt) :

White platelet (WBC) differential check, hematocrit, hemoglobin, red platelet (RBC), and platelet tallies were coordinated by methods for robotized techniques utilizing a NE800 Analyser (Dasit, Milan, Italy).

Dissects of PV and ET were seen on the announcement of the polycythemia vera consider gathering criteria^{11,12} , raised erythrocyte mass, non-appearance of iron miss the mark on, no chromosome of Philadelphia, no fibrosis bone marrow, and no known explanation for the erythrocytosis or for the oversensitive thrombocytosis, the Patients sample with the PV, ET, or SE were either secured with the chemotherapy or with the phlebotomy, or were typical amid that time improvement. No one of the patients standard anti-coagulant or anti-platelet treatment at the time of examination, Blood checks were drilled on new EDTA blended blood with counter of the STKS cell (Coulter Corporation, Hiialeah, FL), For the trainings of the coagulation, a blended blood was with one tenth volume of 3.8% Citrosodine and plasma was detached after the

process of centrifugation at 300 rpm for (20 min) at (4°C), All the plasma of tests were kept at (-70°C) until philanthropy, Pro-thrombin time, lacking thromboplastin time and fibrinogen stages were dauntless by an ACL 1000 coagulometer, For arranging of the fibrinolysis process , blood was upsetting expediently around the beginning of the day on account of the circadian assortments of past what many would think about conceivable, by the Latex system A D-dimer test was created.

Statistical Analysis :

The Mann-Whitney U test was utilized to survey the importance of contrasts between the mean gauge estimations of the patient gathering versus the sound control gathering. The Wilcoxon test was utilized to test the importance of inside gathering contrasts, Differences were viewed as critical at $P \leq 0.05$.

RESULTS :

Table 1 demonstrates that age (1-19) years accounted (zero), were age (20-39) years not exactly of half accounted (35%) this is more rate ,the age (40-49) years accounted (18,84%) and the age (50-above) years accounted (11,16%). Also demonstrates the location in Al-Nasiriya above rate (91,66%) were in Sooq AL-Shyookh the rate are (8,34%) were in Al-Shattra, AL-Jabayesh and Al Rafaaye the level of the location are (zero). The dimensions of instruction of the patients that no perusing and compose accounted (11,66%) were.

Table 1: Distribution of sample according to the age , address and level of education of the patients

	sample	frequency	Percentage
Distribution of sample according to the age	1-9	Zero	Zero
	10-19	Zero	Zero
	20-29	21	35%
	30-39	21	35%
	40-49	11	18.84%
	50-above	7	11.16%
	Total	60	100%
Distribution of sample according to the address patients	Al -Nasirya	55	91.66%
	Sooq Al-Shyookh	5	8.34%
	Al-Shattra	Zero	Zero
	Al-Jabayesh	Zero	Zero
	Al-Refaaye	Zero	Zero
	Total	60	100%
Distribution of sample according to the level of education of the patients	No reading and write	7	11.6%
	Primary	23	38.34%
	Secondary	19	31.66%
	Diploma	5	8.34%
	Bchalers	6	10%
	Total	60	100%

Table 2 :Distribution of sample according to the smoking and to the family history of the patients

Sample	frequency	Percentage
Smoking	41	68.34%
No smoking	19	31.66%
Total	60	100%
Genetic	18	30%
No genetic	42	70%
Total	60	100%

Routine hematologic parameters

As appeared Table 4, WBC, RBC, and platelet tallies of patients with PV were altogether more noteworthy than those of the control subjects. In patients with PV, RBC checks and hematocrit and hemoglobin levels additionally were altogether more prominent than those of the control subjects ($P \leq 0.05$). The lower run points of confinement of certain parameters—especially RBCs, platelets, hemoglobin, and hematocrit—in patients was underneath the lower furthest reaches of ordinary control run esteems. These outcomes compared to those from patients on cytoreductive treatment. However, no impact of HU treatment was seen in any of the parameters of endothelial, or thickening actuation here examined.

All qualities are communicated as middle (range).RBC, red platelet; WBC, white platelet . * $P \leq 0.05$ versus controls (Mann-Whitney test).

27 of ET ,SE and PV of the patients were related with the examination (Table 5), 13 patients were analyzed with PV, (8) folks and (5) females with (45) of an interim of, (8) patients were poor down with SE, all of the men with 49 years of a mean age, The erythrocytosis was qualified in all patients for the smoking, after other shared etiologies were excepted, (6) patients sample were dismembered with (ET), (3)folks and (3) females with 50 years of a despicable age, (12) sound controls, (6) folks and (6) females with 50 years of a mean age , were exorbitantly contained in the planning , Thrombotic complexities happened in (10) from the (27) patients sample , (6) patients took thrombosis earlier the readiness was started, and (4) made venous or vein thrombosis all through the arrangement , None anguished from passing on, (7) from the (10) patients sample with issues of the thrombotic

were in the (PV) swarm, (2) took SE , and (1) took ET , No one of the controls took depleting appearances or thrombotic, positions of the Hemoglobin and entireties of erythrocyte were advanced in the(SE) swarm than in the (PV) swarm , dealt with and normal alike or the (ET) swarm , Despicable hemoglobin positions in the control swarm were ,

Platelet positions were advanced in the (ET) swarm than in the (PV) swarm or the (SE) swarm, In the control swarm, the terrible platelet check ,white platelet incorporates were not intentionally divergent in every one of the four gatherings, PT positions were inside standard parameters in all , regardless (1) patient sample who feel fitting to the chemical therapy-verified (PV) swarm, (PTT) positions were regular in everything beside (5) PV of patients sample , (1) SE of patient sample , (1) ET of patient sample , and (1) of the control, the Circulating of the anti-coagulant was not begin in the patients sample , the result for the euglobulinlysis time were intently looking like in (ET) , (SE) and (PV) patients sample and in the control swarm: the gathering versus of patients', the gathering of the control, positions of the D-dimer were hazy inside the (3) patient sample gatherings and in the control swarm, Serum of the $\alpha 2$ anti-plasmin places of the (27) patients sample are shown in the Table (5), Despicable characteristics for ET, SE, and PV patients were like the characteristics stately in the control swarm. Serum measurements of $\alpha 2$ antiplasmin were raised in (3) patients sample who had battled outrageous scenes of different months foe the thrombosis before troublesome.

Table 3: Distribution of sample according to the many factor of the patients

Sample	frequency	percentage
Asthma	7	11.6%
No asthma	53	88.34%
Heart disease	13	21.66%
No heart disease	47	78.34%
The cupping previously	30	50%
No cupping previously	30	50%
The diet	8	13.34%
No the diet	52	86.66%
Gouty arthritis	30	50%
No gouty arthritis	30	50%

Table 4: Characteristics of control subjects and patients with polycythemia

Hematologic parameters	Controls	Patients
RBCs ($\times 10^{12}/L$)	4.63 (4.02-5.27)	5.88 (3.3-7.21)*
WBCs ($\times 10^9/L$)	5.1 (3.8-9.8)	10.2 (4.6-34)*
Platelets ($\times 10^9/L$)	260.0 (184-391)	328.0 (125-744)*
Hemoglobin (g/L)	13.8 (12.8-16)	16.2 (13.3-20)*
Hematocrit (%)	40.7 (29.7-48.1)	47.0 (37.4-61)*

Table 5: $\alpha 2$ Anti-plasmin Ranks in Patients (27) With (SE), (PV) and (ET)*

Diagnosis	Treatment	Thrombotic event	Ht %	Platelets $\times 10^3/\text{mm}^3$	$\alpha 2$ antiplasmin %
PV	Untreated	CVA, MI	56.4	210	100
PV	Untreated	-	36.3	395	98
PV	Untreated	Recurrent CVA	33.6	325	50
PV spent	Untreated	-	24.2	135	53
PV	Phlebotomy	-	47.8	235	103
PV	Phlebotomy	MI	47	320	120
PV	Phlebotomy	-	49.4	150	118
PV	Phlebotomy	DVT	45.7	400	100
PV	Phlebotomy	-	45	490	50
PV	Phlebotomy	DVT	46.9	250	120
PV	Phlebotomy	DVT, CVA	33	399	70
PV	Phlebotomy	Recurrent CVA	41	200	95
PV	Phlebotomy	DVT	40.6	210	98
SE	Untreated	-	50	250	110
SE	Untreated	-	50.1	152	75
SE	Untreated	Arterial thrombosis	47	199	130
SE	Phlebotomy	-	50	240	98
SE	Phlebotomy	CVA	51	220	99
SE	Phlebotomy	-	50	170	90
SE	Phlebotomy	-	52	850	90
SE	Phlebotomy	-	45.1	796	118
ET	Untreated	-	46.2	689	130
ET	Untreated	Arterial thrombosis	33.2	500	170
ET	Untreated	-	32.1	499	120
ET	Untreated	-	35	415	110
ET	Untreated	-	31	430	100
ET	Untreated	-	40.2	510	130

DISCUSSION:

Results were contrasted and those of control subjects. In all patients, middle RBC, WBC, and platelet checks were essentially expanded over the estimations of controls (Table 4), obviously. What's more, middle hematocrit and hemoglobin levels were altogether expanded in the PV gathering. Be that as it may, in certain patients, the above parameters (especially RBC, hematocrit, and hemoglobin) were low a direct result of HU cytoreductive treatment. No impact of HU treatment on any of the parameters incorporated into this examination was watched. Hence, we didn't separate the outcomes acquired from patients of either bunch based on treatment¹³.

PV is a clonal protest including multi practical hematopoietic stem cells¹⁴. Most components with PV are orchestrated to thrombosis while compelled experience the evil impacts of both of the thrombosis and the leaking through the gathering of the disease¹⁴. Also a (PV) patient sample may move from nearness mainly a bleeder to nearness thrombosis organized to as the infection advancements, Hyper thickness owing to raised hematocrit and thrombocytosis, irregular accumulation of the platelet, and beginning cascade of the coagulation have all been seen in PV¹⁵. No connection has been genuine among these closures and the complexities go over in (PV), Amid other conceivable instruments, the plan of the fibrinolysis has been acknowledged slight cheerfulness in (PV), Bick¹⁶, in 1974, set up lacking potential of the fibrinolysis in (2) out of (4) PV patients sample, Takahashi et al., ¹⁷

begin a diminished the inhibitor of the $\alpha 2$ plasmin in (9) of the PV patients sample, Newly, Wieczorek et al. ¹⁸ leisurely combined the plasminogen of the activator inhibitor (PAI) positions of the antigen in the (PV) patients who capable a thrombotic occasion differentiated and the normal of (PAI) antigen positions in the asymptomatic (PV) patients sample, Cohen et al.¹⁹ inveterate the diminished (PAI) values in an accomplice of 86 (PV) patients, anyway begin no association with the peril of snares of the thromboembolic.

In this work the checked of the partner of (27) patients sample with the ET, SE, and PV and looked at their whole counts of blood, levels of the D-dimer, examinations of the euglobulinolysis, and the serum $\alpha 2$ antagonistic to plasmin regards to an inhabitants of (12) strong controls, We looked for a conceivable association between's different cutoff purposes of the fibrinolysis and the improvement of thrombo hemorrhagic difficulties in this social affair of patients, (10) of the (27) patients sample, reliably (PV) patients, advanced no short of what one thrombotic event earlier or through the examination. We begin no abnormalities amidst the affirmed furthest achieves that may perceive the asymptomatic and the symptomatic patients sample, Mostly, (PV) patients who bleeding edge thrombosis took a comparable coagulation, hematologic and fibrinolytic limits than clear (ET), (PV), or (SE) patients sample or alike of controls, Since no one of the patients sample hurt from release, the test of the D-dimer took slight criticalness in our examination,

meanwhile this is a dynamically trustworthy preliminary of hyper fibrinolysis than of lessened fibrinolysis, the plasma of Elevated measurements of α_2 anti-plasmin were start in (3) patients (1 SE ,1 PV, 1 ET), These patients took industrialized Spartan venous and vein thromboses going before to the planning time allotment, They had no indication of interminable thrombosis that can light up an improvement of inhibitor of the α_2 anti-plasmin drives at the period of the arrangement.

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