

Preoperative haemostatic testing in Sulaimanyia City

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Abstract

Still the preoperative haemostatic testing with basic haemostatic panel one of the controversies subjects which are needed to be tested every now and then. Since the patients in our country are lacking the well organized medical documentation, these testing needs to be considered to avoid possible complications during or after surgery due to the hidden haemostatic abnormalities which is not always can be detected by the tests used as preoperative tests in our hospitals. A blood sample has been taken from 150 patients (59 males and 91 females) attending in surgical & obstetric teaching hospitals. All the patients were admitted for elective surgery. The following tests are done for all patients, platelet count (PC), prothrombin time (PT), activated partial thromboplastin time (aPTT), bleeding time (BT), and (D-Dimer) while (TT) was done for those patients with prolonged (PT) & (aPTT). This study revealed that the frequency of the haemostatic abnormalities in the 150 preoperative cases is (14.6%). The 150 cases were divided to 50 cases with neoplastic disorders & 100 cases without other disorders. (32%) out of neoplastic cases have the haemostatic tests abnormalities while (6%) out of non-neoplastic disorders have these abnormalities. Out of 150 cases the D-dimer was (11.3%), PT was prolonged in (2.66%), aPTT was prolonged in (4%). BT was prolonged in (2%). The Platelet count was low in (4%) while high in only (1.30%). There are a remarkable percentage of patients undergoing elective surgery with abnormal haemostatic parameters, but without clear preoperative testing program to identify them. The haemostatic abnormalities are more common in neoplastic cases, which indicate that the preoperative haemostatic testing needs to be considered seriously in our hospital with special concern to the patients with neoplastic cases.

دراسة مؤشرات عمليه توقف نزف الدم قبل العمليات الجراحية في مدينة السليمانية
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المخلص

الهدف من هذه الدراسة هو التعرف على مؤشرات عمليه توقف نزف الدم للمرضى الداخليين للمستشفى لغرض اجراء العمليات الجراحية وذلك بواسطة مجموعه من الفحوصات الاولية لتقييم عمليه توقف نزف الدم على هؤلاء المرضى اضافة الى معرفه اهمية التغييرات الحاصلة لهذه المؤشرات على العمليات الجراحية وخاصة عند المرضى الداخليين لاجراء عمليات استئصال الاورام السرطانية. شملت الدراسة 150 مريض (59 من الذكور و 91 من الاناث) معدل الاعمار كان 43 سنة وقد اجريت الدراسة في مستشفى الجراحة التعليمي ومستشفى الولادة التعليمي حيث تم اجراء الفحوصات التالية (عدد الاقراص الدموية، وقت الثومبين، وقت الثرموبلاستين الجزئي المفعول، وقت النزف و تحديد تفاعل الدال المزوج) فيما اقتصر اجراء وقت الثرومبين على المرضى الذين لديهم زياده في وقت الثرومبين و وقت الثرموبلاستين الجزئي المفعول فقط. توصلت الدراسة الى ان نسبة التغييرات في مؤشرات عمليه توقف نزف الدم لكل الحالات في هذه الدراسة (14.6%) بينما كانت هذه المؤشرات للحالات السرطانية (32%) و للحالات المرضية الاخرى (6%). كذلك بينت الدراسة ان نسبة المرضى ذو الدال المزوج الموجب (11.3%) بينما كانت نسبة الزيادة لوقت البروثرومبين (6.2%) و البروثرومبين الجزئي المفعول (4%) اما بالنسبة لفحص عمليه توقف نزف الدم فقد كانت (2%). عدد الاقراص الدموية كانت قليلة عند ست حالات وبنسبة (4%) في حين كانت عاليه عند حالتين وبنسبه (1.3%). من خلال هذه الدراسة تبين ان هناك عدد مهم من المرضى الداخليين للمستشفى لغرض العمليات الجراحية لديهم تغييرات غير طبيعيه في مؤشرات عمليه توقف نزف الدم ولكن بدون معرفه هذه التغييرات قبل اجراء العمليات الجراحية كذلك بينت الدراسة ان نسبة هذه التغييرات في هذه المؤشرات تكون اكبر عند مرضى الاورام السرطانية مما يستدعي اهتماما اكبر لهؤلاء المرضى في اجراء مثل هذه الفحوصات قبل العمليات الجراحية

Introduction

Haemostasis is a host defense mechanism that protects the integrity of the vascular system after tissue injury. It works in conjunction with other inflammatory, immune, and repair mechanisms to produce a coordinated response. Haemostatic systems are generally quiescent, but following tissue injury or damage these systems are rapidly activated (1). The routine preoperative performance of a platelet count, bleeding time, prothrombin time, and partial thromboplastin time will reveal most of the major inherited or acquired bleeding diatheses that are likely to be troublesome during or after an operation. Unfortunately, this screening test may fail to warn the surgeon of impending trouble because they fail to detect the milder bleeding tendencies (2). However, the preoperative coagulation panel has been recommended as part of the routine evaluation of all patients and as a screening measure for an unsuspected coagulopathy (3). Haemostatic abnormalities are rather frequent preoperatively in cancer patients being detectable in about 50% of patients with localized tumor and in more than 90% of patients with metastatic diseases (4). An increased risk of clotting is present in acute leukemia (5), mainly in acute promyelocytic leukemia-APL-C (6, 7), Chronic myeloproliferative disorder (8), and in solid tumors such as gastrointestinal tumors, pancreatic, liver, lung and prostatic carcinoma (9). Clotting abnormality can be related to abnormal activation of the coagulation pathway on behalf of mediators released by tumor cells increased procoagulant activity, release of plasminogen activators, release of vascular permeability-enhancing factor, reduced

hepatic synthesis of anticoagulant proteins (antithrombin III, protein C) increased platelet adhesion and aggregation, (10).

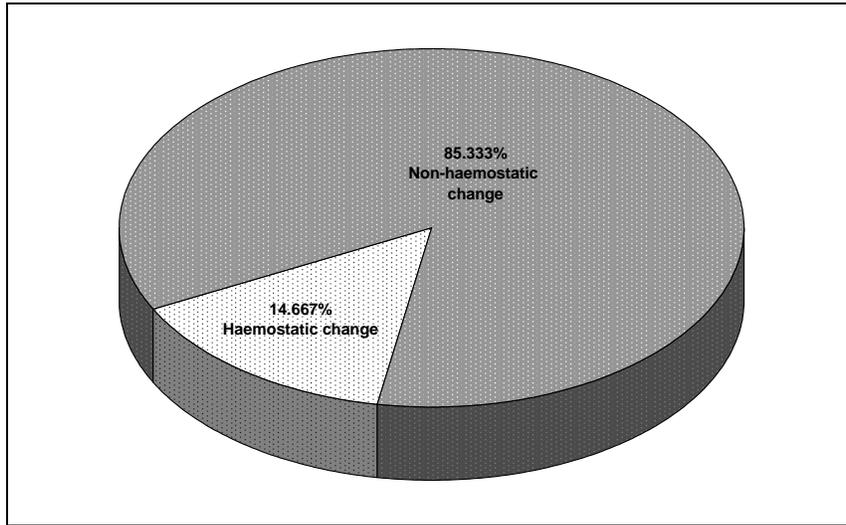
Patients and Methods

This study was conducted from January 10, 2007 to May 20, 2007. The sample size was 150 surgical patients including (59) males and (91) females. The age ranged between (3-100) years old (mean age group was 43 years), the samples were collected randomly from surgical ward in Teaching hospital and Maternity hospital inside Sulaimanyia city. An elective operation was defined as one that appeared on the published surgery schedule, prepared by noon on the day prior to operation. Preoperatively, for each patient a CBP, PT, PTT, BT, PC, D-dimmer were done test while TT was done only for those who had prolonged PT and aPTT. CBP including platelets count was done by hematological autoanalyser (Beckman Coulter), hemostatic test panel was done by Biolabo Diagnostic automated machine, while the D-dimer was tested by latex method (Atlas medical company).

Results

This study revealed that the frequency of the haemostatic abnormalities in the 150 preoperative cases is (14.6%). The 150 cases were divided to 50 cases with neoplastic disorders & 100 cases without other disorders. (32%) out of neoplastic cases have the haemostatic tests abnormalities while (6%) out of non-neoplastic disorders have these abnormalities. Out of 150 cases the D-dimmer was (11.3%), PT was prolonged in (2.66%), aPTT was prolonged in (4%). BT was prolonged in (2%). The Platelet count was low in (4%) while high in only (1.30%).

The frequency of haemostatic abnormalities in all study cases.



The distribution of coagulation tests and platelets count for all cases.

Cases with Haemostatic changes	Neoplastic	Non neoplastic
PT prolonged	4 (2.6%)	0
PTT prolonged	5 (3.3%),	1 (0.6%),
BT prolonged	3 (2%),	0
TT prolonged	0	0
Thrombocytopenia	6 (4%),	0
Thrombocytosis	0	2 (1.3%).
D-dimer positive	14(82.3%)	3(17.7%).

Discussion

Perhaps one of the most important tasks that fall to the consultative hematologist is the preoperative assessment of hemostasis. The time-honored tools available to the hematologist include the clinical bleeding history, the physical

examination, and a few select laboratory tests. Despite advances in clinical laboratory medicine and the advent of entirely new technologies, little has changed in the tests that are utilized for the assessment of bleeding risk. They remain remarkably effective in providing the information needed to evaluate the

risk of bleeding in the surgical setting, (11). This study was done to show the efficacy of doing routine coagulation tests for detection the coagulopathies in candidate patients for elective general surgery procedures. The prothrombin time (PT), partial thromboplastin time (aPTT), platelet count (PC), Thrombin time (TT), bleeding time (BT), Clotting time (CT) and D-dimer for (150) patients were done. The haemostatic abnormalities in this study cases are (14.6%). The results of other studies were higher than the present study, like Dagan Schwartz study (12) 19 %. Juergen Koscielny and Sabine Ziemer study (13) 40.8% .The differences between our findings and other studies might be attributed to many factors like the differences in criteria of selection of the cases and sample size. However, the question needs to be answered, according to this study or others, whether, the preoperative haemostatic testing is must be a routine or we need further criteria to do that. In table (1), probably we can touch one of these criteria, when we see the haemostatic abnormalities are significantly higher in neoplastic cases then other, that may be raise another question, whether we should do a haemostatic testing for special group of medical illness. Some people believe that the preoperative haemostatic tests have no clear impact for outcome of surgical procedures and there is no need to spend time or effort with this process.(2) However; in respect to the results of this and other studies, there is no doubt about the importance of this procedure in neoplastic disorders undergoing surgery. In table three and four the haemostatic abnormalities present with respect to the haemostatic panel, which is considered as basic for preoperative haemostatic tests. Some

studies prefer the aPTT as a single test can be used for preoperative test, however, the table (1) shows the abnormalities was distributed over all basic haemostatic panel including the platelets count. That make the preoperative haemostatic evaluation done by single test may not be valued. In the same table the D-dimer again is raised more than four folds in neoplastic cases in compare with others. The D-dimer is more specific in compare with other haemostatic panel tests in detection of haemostatic abnormalities, especially DVT and DIC. Rowbotham BJ (14). That make using this panel including D-dimer in neoplastic disorders preoperatively is highly recommended for detection of any hidden chronic DIC or silent DVT.

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