

**Original Research Article****Diagnostic Efficacy of D-Dimer Test in Patients Suffering from Disseminated Intravascular Coagulation (DIC) Attending in Tertiary Care Hospital at Patna**

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Abstract

Objective: D- dimer test is used as a diagnosis test for acute disseminated intravascular coagulation (DIC). This study was undertaken to evaluate the sensitivity and specificity of D- dimer test in the diagnosis of acute DIC and its role in diagnosis of sub- clinical DIC.

Material and Method: A total of 18 patients of clinically diagnosed as acute DIC and 13 patients with sub- clinical DIC were included in the study.

Result: All the patients had positive D- dimer test, and markedly prolonged PT, aPTT and TT were seen in 14 (77.78%) patients. D- dimer test was found to be highly specific but less sensitive for the diagnosis of acute DIC. Out of 13 patients predisposed to sub - clinical DIC D-dimer was positive in 02 (15.38%) patients and PT, aPTT and TT were mildly prolonged in 02(15.38%) patients.

Conclusion: It is suggested that D-dimer positivity for the diagnoses of sub- clinical DIC need to be considered with caution and to be supplemented by other coagulation test including serial follow up with d-dimer and coagulation tests.

Keywords: D-dimer, sub -clinical DIC, acute DIC.

Introduction

D- dimer test has recently been introduced as a diagnostic test for acute disseminated intravascular coagulation (DIC) and venous thrombosis. Its interpretation in the above conditions largely depends on the clinical profile of the patients, which consists predominantly of bleeding manifestations in acute DIC and, thrombotic manifestations in the latter condition. Despite its wide usage there is limited data on the

sensitivity and specificity in the diagnosis of Acute DIC. The latter may be seen in a large number of conditions like disseminated tuberculosis, malignancies, post operative states, septic shock and possesses a diagnostic problem since it is largely asymptomatic and often has borderline normal screening coagulation tests, thus in the present study, the specificity and sensitivity of D- dimer test in acute DIC and its role in diagnosis of sub clinical DIC was

evaluated in patients presenting to the laboratory of Hematology Department for the diagnosis of DIC.

Material and Method

The present study was conducted in Department of Pathology, Nalanda Medical College, Patna during the period of January 2015 to June 2016. A total of 18 patients suffering from clinically acute DIC (disseminated tuberculosis, post operative states, malignancy, septic shock, head injury and pneumonitis) with bleeding manifestation from at least three sites, patients with conditions predisposing to DIC without clinical evidence of bleeding from any site were included in the study. Age and sex matched healthy individuals served as controls group. The platelet count (PC) prothrombin time (PT), activated partial thromboplastin time (aPTT), thrombin time (TT), D-dimer test and peripheral blood smear examination were performed in all patients. PT, aPTT, TT were done by fully automated machine supplied by start pharma and CBC was done by Mindray 6200 six part.

Result

Out of the 18 patients suspected to have clinically acute DIC, D-dimer test was positive in all cases. Markedly prolonged PT (>18_s), aPTT (>50_s) and TT (>20_s) were seen in 12 (66.67%) of patients. In 01(5.55%) patient PT was prolonged. Thrombocytopenia was seen in 04 (22.23%) patients. In 01 patient, PT, APTT and TT were normal. Peripheral smear examinations revealed microangiopathic haemolysis in all the above cases. Out of 13 patients predisposed to sub - clinical DIC D-dimer was positive in 02 (15.38%) patients and PT, aPTT and TT were mildly prolonged in 02(15.38%) patients.

The specificity and sensitivity of D- dimer test for acute DIC was calculated to be 82% and 100% respectively. The positive predictive value and negative predictive value was calculated to be 87% and 100% respectively.

Discussion

In the present study, D-dimer test was observed to be a highly sensitive (100%) test for diagnosing acute DIC, although its specificity was lower since it was also positive in normal individuals. Thus although its negative predictive value is high, its positive predictive value is low signifying that only in an appropriate clinical setting, D-dimer test positivity suggests DIC. However it may serve as a good screening test. Out of 13 patients predisposed to sub-clinical DIC, based on D-dimer tests positivity, abnormality in coagulation tests and presence of microangiopathic haemolytic anemia was seen in 2 patients. In 04 patients, however, the coagulation parameters were normal and no microangiopathic haemolytic anemia blood picture was seen on peripheral smear examination. It is possible that they might have had false positive D-dimer test or they may have been cases of an early form of sub clinical DIC not affecting any coagulation parameter or peripheral smear.

Conclusion

It is thus suggested that D-dimer test positivity for the diagnosis of sub- clinical DIC, needs to be considered with caution, and, the diagnosis may be conclusively made only if supplemented by other coagulation tests, peripheral smear examination for microangiopathic haemolytic anemia. In cases where the coagulation tests are normal and only D-dimer is positive, serial follow-up with D-dimer test and coagulation tests, may be helpful in diagnosis.

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