An increased plasma level of D-dimer has been suggested as an indicator of postoperative thrombembolism (TE). We studied the D-dimer level in patients undergoing elective major abdominal surgery and in healthy volunteers to evaluate a possible value of D-dimer as a screening test for TE. 18 patients and 5 healthy volunteers were studied. The patients received low molecular weight heparin in a starting dose of 2500 mg/day intravenously once daily for 7 days. The 125 I-fibrinogen uptake test (FUT) was done in all patients. Blood samples were taken preoperatively, postoperatively and on the postoperative day 1, 3, 4, 5 and 6. The volunteers had blood samples taken before and 4 hours after substantial Loganpirin injection. D-dimer was assayed by enzyme-immunoassay (Biorad, Maastricht, Elisa D-dimer, Cat. no. 98657). Results are given as median with 95% confidence limits in brackets.

One patient developed deep venous thrombosis verified by phlebography. Two patients had abnormal FUT but normal phlebography. The plasma level for D-dimer in the 15 patients with normal FUT was 250 ng/ml (300-800) postoperatively. The D-dimer level increased postoperatively to 1700 ng/ml (900-3300) (p < 0.001). The following days the D-dimer level increased steadily to 4800 ng/ml (2600-6800) 6 days postoperatively. The plasma level of D-dimer in the patients with deep venous thrombosis and the 2 patients with abnormal FUT were less than 110 ng/ml both before and after injection of Loganpirin. The plasma level of D-dimer in the patient with deep venous thrombosis and the 2 patients with abnormal FUT were within the range of the patients with normal FUT.

The postoperative D-dimer level was as high as that reported in patients with diagnosed thromboembolism.

In conclusion, the D-dimer test does not seem to be a potential screening test for postoperative thromboembolism.

A comparison of D-dimer and serum fibrinogen/fibrin degradation products (FDP)'s in the investigation of hypercoagulable states.

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D-Dimer assays measure specific breakdown products of cross-linked fibrin whereas FDP assays are not specific for these products. We have shown, using a semiquantitative method (Fibrin Degradation Test) semi-quantitatively in patients with clinical and laboratory evidence of disseminated intravascular coagulation, acute and chronic liver disease, acute leukaemia at presentation and the close correlation with F.D.P. levels in patients with liver disease, those with venous thrombosis and the 2 patients with abnormal FUT, that D-Dimer levels were elevated when F.D.P. levels were normal and vice-versa. We conclude that a close relationship does exist between D-Dimer and F.D.P. levels in the clinical conditions that we have studied. We note the high incidence of elevated D-Dimer levels and the close correlation with F.D.P. levels in patients with liver disease and the high incidence of elevated D-Dimer levels suggesting increased activity of the coagulation system in patients with acute leukaemia.