PWE-295 THROMBIN GENERATION IS NORMAL IN CIRRHOTICS WITH ACUTE VARICEAL HAEMORRHAGE: RESULTS FROM A PROSPECTIVE STUDY

doi:10.1136/gutjnl-2012-302514d.295

[1]V Jairath,* [2]P Harrison, [3]S Stanworth, [1]J Collier, [3]M Murphy, [1]E Barnes. *[1]John Radcliffe Hospital, Oxford, UK; [2]Oxford Haemophilia and Thrombosis centre, Oxford, UK; [3]NHS Blood and Transplant, Oxford, UK*

Introduction Cirrhotics have multifactorial derangements in haemostasis commonly leading to transfusion of blood components for both prophylaxis and treatment of bleeding. Thrombin generation assays have recently demonstrated that the haemostatic balance in stable cirrhotics is preserved, despite the traditional dogma of "auto-anticoagulation". It is unclear whether variceal bleeding is precipitated by only vascular abnormalities or due also due to deranged coagulation. We determined the thrombin generating capacity of decompensated cirrhotics presenting with acute variceal haemorrhage.

Methods After ethical approval, blood was drawn from 14 cirrhotic patients on arrival to the Emergency Department with AVH prior to any transfusion of any blood components. 74 compensated, non-bleeding cirrhotics and 30 healthy volunteers were enrolled as comparators. Several components of thrombin generation were assayed with and without Protac®, an activator of protein C. The ratio of endogenous thrombin potential with/without Protac® (ETP ratio) was used an in index of hypercoagulability.

Results Cirrhotics with AVH had a lower haemoglobin, platelet count and prolonged prothrombin time in comparison to stable, non-bleeding cirrhotics. Despite these conventional coagulation indices, cirrhotics with AVH had a shorter lagtime (2.7 min vs 2.8 min), time to peak thrombin generation (4.7 min vs 5.2 min), greater peak thrombin generation (376.5 vs 323.4 nM) and endogenous thrombin potential (ETP) (2035.9 vs 1682.7 nmol/l) compared to stable, non-bleeding cirrhotics. There was no significant difference in the ETP ratios between cirrhotics with AVH (0.80, 95% CI 0.68 to 0.91), non-bleeding cirrhotics (0.88, 95% CI 0.81 to 0.94) and healthy controls (0.79, 95% CI 0.74 to 0.84). Cirrhotics with AVH demonstrated massive upregulation of the procoagulant factor VIII (306% vs 192%) and downregulation of the anti-coagulants proteins C (44% vs 64%), S (75% vs 87%) and antithrombin (55% vs 72%) in comparison to stable cirrhotics.

Conclusion The haemostatic balance in decompensated cirrhotics with variceal haemorrhage appears preserved, most likely due to massive upregulation of factor VIII and concomitant down regulation of proteins C, S and antithrombin. These results call into question the utility of conventional coagulation tests to guide replacement of coagulation factors in the form of FFP. Prospective studies using global tests of coagulation to guide therapeutic transfusion of blood components in bleeding cirrhotics are needed.

Competing interests None declared.