Indian Journal of Basic and Applied Medical Research; June 2014: Vol.-3, Issue- 3, P. 264-274

**Original article:**

**Haemostatic alterations in patients of sickle cell trait and homozygous sickle cell disease – A hospital based case control study**

**1Tatkare Nilesh , 2Joshi Deepti , 3Ingole NS , 4Gangane Nitin**

1Assistant Professor, K. J. Somaiya Medical College, Sion, Mumbai, India

2 Assistant Professor, MGIMS, Sevagram, Maharashtra, India

3Professor, MGIMS, Sevagram, Maharashtra, India

4Professor, MGIMS, Sevagram, Maharashtra, India

C**orresponding author:** Dr. Nilesh T. Tatkare

Date of Submission: 04 March 2014 ; Date of Publication : 11 June 2014

**Abstract:**

**Background:** Nearly every component of hemostasis is altered in patients with sickle cell disease (SCD). Though these patients are known to be in hypercoagulable state, increased risk of peri-operative bleeding complications has also been observed in these patients.Our aim was to determine the mean levels of platelet indices, Prothombin time (PT), activated Thromboplastin time (APTT) and fibrinogen in patients with homozygous sickle cell disease (HbSS), sickle cell trait (HbAS) and normal controls (HbAA) and their role as prognostic markers .

**Method & Materials:** The study included 321 cases of sickle cell haemoglobinopathies (118 HbSS and 203 HbAS) and 321 normal controls. Platelet indices were determined by automated cell counter. PT, APTT and fibrinogen levels were estimated by using commercial agents and BK coagulometer.It was done by using student’s t-test and chi square tests by statistical software STATA version 9.0.

**Results:** Mean fibrinogen levels were 275.56, 357.37 and 522.24 mg/dl respectively in HbAA controls, HbAS and HbSS patients. The fibrinogen levels in HbSS patients were found to be raised even more in those in crisis. Mean platelet volume (MPV), Platelet distribution width (PDW) and PT and APTT values were also significantly prolonged in these patients.

**Conclusions:** Since, fibrinogen levels showed a higher increase in crisis, its estimation can be used as a parameter to monitor progression of sickle cell crisis. We obtained high MPV and PDW in HbSS patients as compared to controls; larger platelets are more thrombogenic, we propose a hypothesis that larger platelets in HbSS patients may predispose them to vaso-occlusive crisis.

**Key words:** Coagulation, fibrinogen, platelets, Sickle cell anaemia