in vitro closure time으로 측정된 요독증 환자의 혈소판 기능 이상에 대한 desmopressin의 효과

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Desmopressin Improves Platelet Dysfunction Measured by in vitro Closure Time, Through Increase in Plasma von Willebrand Factor in Uremic Patients

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Background : Desmopressin may shorten bleeding time in uremic patients. Bleeding time, which is most frequently used measure of global platelet function, has important disadvantages. In vitro closure time (CT) is a relatively new and efficient tool for the investigation of primary hemostasis. Von willebrand factor plays a role in primary hemostasis, by mediating adhesion of platelets to the subendothelium and factor VIII is cofactor of intrinsic coagulation pathway, leading to the formation of fibrin clot.

Purpose : We designed a prospective randomized controlled study to evaluate the effect of desmopressin on platelet function using in vitro CT in uremic patients

Methods : Forty eight uremic patients who were going to start hemodialysis through venous catheter and had prolonged CT were enrolled and randomly assigned to either desmopressin (n=24) or control group (n=24). Enrolled subjects did not use drugs that could affect platelet function during the 10 days before the assays. Desmopressin was infused at a dosage of 0.3 ug/kg over 30 minutes in 50 mL of saline in the desmopressin group. Only saline was infused in the control group. CBC, prothrombin time, activated partial thrombin time, plasma fibrinogen, von Willebrand factor (VWF), factor VIII (FVIII), and CT were measured at before and one hour after desmopressin or saline infusion. For establishment of reference intervals of CT, CT were also measured in 120 healthy individuals.

Results : The reference intervals by the central 95th percentile were 82−182 sec for collagen/epinephrine closure time (CEPI) and 62−109 sec for collagen/ADP closure time (CADP) in healthy individuals. In the desmopressin group, CEPI and CADP were significantly shortened from 212±58 to 152±45 sec and from 189±78 to 147±58 sec after desmopressin infusion, respectively. (p=0.01 and p=0.012, respectively). FVIII was significantly increased from 188±66 to 252±93% (p=0.017) and VWF was significantly increased from 113±9 to 121±9% (p=0.043). There were no changes of CEPI or CADP in the control group. There were no significant changes in hemoglobin, platelet count, prothrombin time, activated partial thrombin time, and fibrinogen between before and after desmopressin or saline infusion in both groups.

Conclusion : These results indicate that desmopres is useful in improving platelet dysfunction in uremic patients, possibly through increase in plasma VWF. It may improve in vivo hemostasis through increase in plasma FVIII.

Key Words : 데스모프레신, 혈소판 기능 이상, 체외 혈소판 기능 검사
Desmopressin, in vitro closure time, Platelet dysfunction