AIM: We aimed to study thromboelastographically clot quality formed by stored platelets (PLT) in vitro and after platelet concentrates (PCs) transfusion ex vivo.

METHODS: PLT aggregation and clot quality (clot strength and clot elasticity) were assayed from 67 single-donor apheresis and leucoreduced PCs prepared without or with plasma substitution by additional solution up to 70 vol%. Clot quality after single PCs transfusion was tested in 49 patients (fibrinogen >= 1.4 g/L and PLT count >= 50 x10^9/L) from whom 15 were required second or more PCs transfusions.

RESULTS: The data analysis showed the loss of influence of activated but not intact PLT in final clot quality. During PCs storage clot strength reduced gradual up to 40-55% from initial, and shear elastic modulus declined from (mean ± SD) 1855.6 ± 30.1 Pa to 662.5 ± 11.1 Pa. Unsuccessful PCs transfusion resulted in weak clot despite acceptable fibrinogen level and PLT count. Both clot strength and shear elastic modulus had no different significantly in compare to their values before transfusion.

CONCLUSION: We suppose that good transfusion outcome reflect success in vivo recovery of PLT activity determining their contribution in clot strength.