Application of cryoprecipitate as a hematostatic glue.

Authors: Shiono N, Koyama N, Watanabe Y, Tokuhiro K, Suzuki N, Fujii T, Ozawa T, Sakuragawa H, Ohsawa H, Iwashita Y, Sensui S, Yamazaki S

Publication Date: 1998

Abstract:

BACKGROUND: The effectiveness of cryoprecipitate, harvested from a patient's own fresh frozen plasma, for use in cardiac surgery as a hematostatic glue was studied in 32 randomized elective adult cardiac surgery patients from January 1993 to July 1994.

MATERIALS AND METHODS: Patients from the Toho Sakura Hospital were randomly allocated to two groups: Group 1 (n=11) received conventional fibrin glue presently available in our institution; while Group 2 (n=21) received autologous cryoprecipitate as a hematostatic glue. Surgical procedures broken down by group were as follows: Group 1: 4 CABG, 5 valvular surgeries and 2 other. Group 2: 11 CABG, 6 valvular surgery, 4 other. We preserved the patient's own blood and stored pure red cell and fresh frozen plasma (FFP). Cryoprecipitate was prepared from the FFP and preserved until required.

RESULTS: Cryoprecipitate had a 5-fold increase in fibrinogen activity (1190+/-311 mg/dl vs 238+/-34 mg/dl $p<0.001$), a 10-fold increase in factor VIII activity (362+/-219% vs 34+/-11%, $p=0.001$), and 4.5-fold increase in factor XIII activity (538+/-213% vs 119+/-50%, $p<0.001$), compared to serum. The amount of bleeding postoperatively was slightly lower in the cryoprecipitate glue group compared to the conventional glue group, but this was not significantly different.

CONCLUSIONS: We conclude that autologous samples of human cryoprecipitate prepared from a

patient's own FFP had a strong hematostatic effect compared to conventional fibrin glue and was a very valuable hematostatic agent during cardiac surgery.