Supplementary Digital Content 2: Additional Results

# Results

Initial results from the finalized tool, with bodyweight 70 kg, baseline hematocrit 40%, FII 100% and AT 100%. are shown in the main publication (Figure 1). A new set of baseline parameters was then used: bodyweight 120 kg, hematocrit 50%, FII 40% and AT 60%. Six units of therapeutic plasma and 3000 IU of PCC were modelled with volume resuscitation (150 mL per unit of PCC; zero with therapeutic plasma). The results are shown in Supplementary Figure 1A. Thirdly, the original scenario was re-assessed with a low baseline hematocrit (22%). In this simulation, a unit of RBC was added. Supplementary Figure 1B-1 shows the outcomes with respect to FII, AT and the FII:AT ratio, while the changes in hematocrit are shown in Figure 1B-2.

The tool was applied to simulate situations described in cardiovascular surgery, trauma and vitamin K antagonist reversal. In all three cases, values entered into the concentration simulator were consistent with published research,1-8 and volume resuscitation was added to PCC in cardiovascular surgery and trauma. The results are shown in Supplementary Figure 2. All scenarios indicate that PCC produces a much greater increase in FII than therapeutic plasma. In cardiovascular surgery and trauma, AT was increased by therapeutic plasma whereas decreases were seen with PCC plus volume resuscitation. In vitamin K antagonist reversal, AT levels changed little in response to either treatment. The patient’s baseline levels of FII and AT and the dose of hemostatic agent affect the final FII:AT ratio. In the cardiovascular surgery example, with a low baseline FII level, the final ratio was 0.61 with therapeutic plasma and 1.26 with PCC; corresponding values in trauma were 1.10 and 3.21. In the simulation of vitamin K antagonist reversal, the final ratio was 0.40 with plasma and 1.05 with PCC.

**Supplementary Figure 1. Results obtained with the finalized, theoretical FII-AT concentration simulator.** A) 120 kg patient with 50% hematocrit, baseline plasma levels of FII and AT of 40% and 60%, respectively, and addition of 6 units of therapeutic plasma or PCC (additional volume resuscitation, 150 mL per unit of PCC). B) 70 kg patient with 22% hematocrit, baseline plasma levels of FII and AT of 100%, and addition of 4 units of PCC and therapeutic plasma (1. FII:AT and 2. hematocrit results).

**A)**

 

**B-1)** 

**B-2)**

 

**Supplementary Figure 2. Simulation of bleeding situations using the finalized, theoretical FII-AT concentration simulator.** A) Cardiovascular surgery,1,5-7 B) Trauma,3,4,9,10 and C) Vitamin K antagonist reversal.2,8

**A)**



**B)** 

**C)**

 

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