

**Table 1BS:** Characteristics of the severe, massive or excessive bleeding and transfusion groups in the studies listed on Table 1AS (studies that report adequate data on bleeding rates and blood product transfusion in severe or massive bleeding episodes in cardiac surgery).

Study	No patients	Total blood loss (median or mean)	Blood loss rate (ml/h, mean ± SD)	RBC (median)	FFP (median)	RBC:FFP	PLT (median)	Total blood product units	Re-exploration	Death	Fibrinogen	Cryoprecipitate (units)	DDAVP	PCC	rFVIIa	FXIII
Bischof, 2015 <sup>1</sup>	250	1.0 ± 0.4 L/12 hours 2.4 ± 1.1 L/12 hours	NA	Mean: 1.8 ± 4.8 Mean: 5.6 ± 5.0	1.0 ± 1.9 3.1 ± 3.4	Approx.: 1.8:1 Approx.: 1.8:1	0.3 ± 0.9 1.2 ± 1.5	NA	1 (0.4%) 10 (20%)	2 (1%) 4 (8%)	0.4 ± 1.0 g 3.4 ± 7.4 g	NA	NA	547 ± 836 IU 1,800 ± 1,271 IU	NA	NA
Greilich, 2015 <sup>2</sup>	(responders-non-responders) 27 (21-6)	(responders-non-responders) 2,337-5,351 in 24h	1,420 ± 957 ml/h	(responders-non-responders) 4-14	(responders-non-responders) 4-8	(responders-non-responders) 1:1 up to 1.75:1 (approx)	(responders-non-responders) 1-3.5 apheresis units	-	1 (17%)	1 (17%)	-	(responders-non-responders) 10-20	(responders-non-responders) 10-3 pts (dose: 24 µg)	NA	5 no-responders (83%), dose 25-60 µg/kg/dose	NA
Doussau, 2014 <sup>3</sup>	965 (562-405)	Cell saver salvaged blood > 1000 ml: 18.4%	NA	Percentage of pts transfused with RBC: 100%	Percentage of pts transfused with FFP: 58.11%	NA	Percentage of pts transfused with PLT: 48.5%	NA	215 (22.2%)	109 (11.3%)	NA	NA	NA	NA	NA	NA
Tanaka, 2014 <sup>4</sup>	20	Fib: 925 (500-1693) 12h PLT: 1315 (653-2965) 12h	NA	Fib: Approx. 2500, (0-7000) ml PLT: Approx. 3100, (0-4500) ml (PLT)	Fib: 0, (0-2400) ml PLT: 700, (0-2250) ml	NA	Fib: 0, (0-6) apheresis units PLT: 2, (1-6) apheresis units	Total donor exposures: Fib: 0, (0-13.3) PLT: 16.5 (10-39.8)	Fib: 1/10 PLT: 2/10	Fib: 0% PLT: 0%	NA	Fib: 0, (0-1600) ml PLT: 400, (0-1200) ml	NA	NA	NA	NA
Kremke, 2013 <sup>5</sup>	59	989 ml in ICU 1112 ml in ICU	NA	420 ± 1224 ml (CLOP) 507 ± 913 ml (DUAL)	417 ± 780 ml (CLOP) 453 ± 884 ml (DUAL)	1.18:1 (approx.) 0.98:1 (approx.)	306 ± 609 ml (CLOP) 367 ± 496 ml (DUAL)	NA	10.2 (CLOP) 8.2 (DUAL)	15 (13%)	NA	NA	NA	NA	NA	NA
Andersen, 2012 <sup>6</sup>	44	Total intra-operative: 750 ml (500-1200)	Total post-operative: 570 ml/12h (range: 398-846)	Intra-operative: 1050 ml (range: 700-1750)	Intra-operative: 2000 ml (range: 1000-2313)	0.5:1	Intra-operative: 600 ml (range: 598-800)	NA	0	1 (2.3%)	NA	100 ml (range: 0-100)	NA	NA	Median: 32 µg/kg (range: 16-43 µg/kg)	NA
Chapman, 2011 <sup>7</sup>	235	NA	NA	4.7	4	1.17:1	9.2 single units	NA	26 (11%)	18 (7.7%)	NA	NA	NA	NA	Mean: 6.5 ± 3.8	NA
Williams, 2011 <sup>8</sup>	49	1050 ± 864 / 12h + 715 ml from cell saver	1050 ± 864 / 12h	6	11	0.54:1	5 apheresis units	22 (18-31)	21 (43%)	2 (4%)	NA	NA	NA	NA	5 (10%)	NA
Girdauskas, 2010 <sup>9</sup>	ROTEM: 27 Control: 29	890/24h (range 600-1250) 950/24h (range 650-1400)	600/12h (range 380-950) 680/12h (range 450-1000)	6.0 (range 2.0-13.0) 9.0 (range 4.0-14.0)	3.0 (range 0-12.0) 8.0 (range 4.0-18.0)	2:1 1:1:1	apheresis units 1.0 (range 0-4.0) 2.0 (range 1.0-3.0)	9.0 (range 2.0-30.0) 16.0 (range 9.0-23.0)	5 (19%) 7 (24%)	4 (15%) 5 (17%)	2.0 g (range 2.0-3.0) 2.0 g (range 2.0-3.0)	-	-	0 IU (range 0-2000) 3000 IU (range 2000-3000)	1 (4%) 2 (7%)	-
Willis, 2010 <sup>10</sup>	42 107 104 368 183	NA	NA	6 (3-10) + 2 (1-4) 5 (2-10) + 2 (1-3) 6 (4-9) + 2 (1-5) 6 (3-9) + 2 (1-5) 7 (4-10) + 2 (1-6)	8 (6-12) + 0 (0-4) 6 (4-10) + 2 (0-5) 6 (4-10) + 2 (0-4) 7 (4-10) + 2 (0-5)	Approx: 0.75:1 Approx: 0.83:1 Approx: 1:1 Approx: 1:1	4 (2-8) + 0 (0-1) 2 (2-5) + 0 (0-2) 3 (2-5) + 1 (0-2) 3 (2-5) + 1 (0-2) 3 (2-6) + 1 (0-3)	NA	NA	7 (17%) 15 (14%) 17 (16%) 67 (18%) 36 (20%)	NA	1 (0-10) + 0 (0-5) 5 (0-10) + 0 (0-1) 5 (0-8) + 0 (0-2) 8 (0-10) + 0 (0-5) 8 (0-10) + 0 (0-6)	NA	NA	1. < 40 µg/kg 2.41-60 µg/kg 3.61-80 µg/kg 4.81-10 µg/kg 5. > 100 µg/kg	NA
Christensen, 2009 <sup>11</sup>	76 1112	Bleeding: 1,669 (± 1170) ml/6h Not bleeding: 472 (± 873) ml/6h	NA	Bleeding: 4.5 (± 3.8) Not bleeding: 0.9 (± 1.9)	Bleeding: 4.1 (± 5.2) Not bleeding: 0.3 (± 1.6)	1.1:1	Bleeding: n = 19 (25.0%) Not bleeding: n = 19 (1.7%)	NA	Bleeding: 45 (59.2%) Not bleeding: 38 (3.4%)	Bleeding: 17 (22.4%) Not bleeding: 61 (5.5%)	NA	NA	NA	NA	NA	NA
Masud, 2009 <sup>12</sup>	93	NA	NA	Before: 7.6 ± 6.8 After: 3.5 ± 4.7	Before: 6.9 ± 7.3 After: 1.7 ± 3.39	Approx: 1.1:1 Approx: 2:1	Before: 6.04 ± 12 After: 1.07 ± 1.9	NA	11 (11.8%)	21 (22.6%)	NA	Before: 16.1 ± 19.9 After: 8.1 ± 24.6	NA	NA	56.2 ± 26.5	NA
Wasowicz, 2009 <sup>13</sup>	28 10	Before rFVIIa: Res: 433 (260-545) NRs: 1,063 (505-1275) After rFVIIa: Res: 248 (0-618) 12h NRs: 470 (100-1000) 12h	NA	Before rFVIIa: Res: 5.5 (3.5-7) NRs: 7 (4-10) After rFVIIa: Res: 2 (1-3) NRs: 2 (1-5)	Before rFVIIa: Res: 6.5 (4-9) NRs: 8 (6-10) After rFVIIa: Res: 0 (0-0) NRs: 2 (1-4)	Before rFVIIa: Res: 0.84-1 NRs: 0.87:1 After rFVIIa: Res: 2.0 NRs: 1:1	Before rFVIIa: Res: 10 (5-10) NRs: 10 (10-15) After rFVIIa: Res: 0 (0-0) NRs: 5 (0-10)	NA	Before rFVIIa: 36% vs 20% After rFVIIa: 0% vs 33%	NA	NA	NA	NA	NA	NA	NA
Karkouti, 2008 <sup>14</sup>	503	NA	NA	13 (8-20)	12 (8-20)	1.1:1	20 (10-25)	55 (40-84)	259 (53%)	159 (32%)	NA	10 (0-20)	NA	NA	Median: 62 µg/kg (range 40-89 µg/kg)	NA
Trowbridge, 2008 <sup>15</sup>	17	Cell saver salvaged blood: 3046 ± 2104	NA	5.4 ± 3.5	8.6 ± 5.5	0.62:1	6.5 ± 8.7 single units	NA	NA	NA	NA	11.4 ± 9.4	NA	NA	17 (100%)	100%
Karkouti, 2006 <sup>16</sup>	476	NA	NA	Percentage of pts transfused with ≥ 5 RBC: 8.7% ≥ 7 RBC: 4.4%	NA	NA	NA	NA	187 (39%)	59 (12%)	NA	NA	NA	NA	NA	NA
Chen, 2004 <sup>17</sup>	45	1329 ± 154 24h	NA	4.3 ± 0.6	1.0 ± 0.6	4.3:1	9.0 ± 1.7 single units	NA	4 (10)	1 (2.2%)	NA	NA	NA	NA	NA	NA
Study	No patients	Total blood loss (median or mean)	Blood loss rate (ml/h, mean ± SD)	RBC (median)	FFP (median)	RBC:FFP	PLT (median)	Total blood product units	Re-exploration	Death	Fibrinogen	Cryoprecipitate (units)	DDAVP	PCC	rFVIIa	FXIII
Stein, 2014 <sup>18</sup>	1	> 3750 ml	Very high	55	36	1.52:1	20 single units	111	X2	1	68 g	NA	40 µg	17,000 IU	Mean: 7 mg	7,500 IU + FVIII/vWF 2000 IU
Warentin, 2012 <sup>19</sup>	1	> 7000 ml	> 1500 ml/h x 3h	26	22	1.18:1	5 apheresis units	73	No	No	NA	50	No	No	Mean: 21.6	No
Barua, 2011 <sup>20</sup>	10	NA	1758 ± 163.9/6h -> 405.6 ± 50.5 mL/6h	NA	NA	NA	NA	19.6 ± 1.5 U <- 4.4 ± 0.6 U	8/10 (80%), then 2/8 (25%), then rFVIIa	NA	NA	NA	NA	NA	65 µg/kg	NA
Bishop, 2006 <sup>21</sup>	12	Mean: 743 mL (range, 245-1,550)	NA	Before rFVIIa: 7.7 (0-18) After rFVIIa: 0.08 (0-1)	Before rFVIIa: 18.7 (10-40) After rFVIIa: 0.15 (0-2)	Before: 0.41:1 After: 0.53:1	Before rFVIIa: (10-40) After rFVIIa: 0	NA	No re-exploration rFVIIa stopped bleeding in the OR	0/12 (0%)	NA	Before: 19.5 (8-32) After: 0	NA	NA	100 µg/kg	NA
van de Garde, 2006 <sup>22</sup>	7	Median: 850 (550-1700) plus 3400 (960-6000) ml from cell saver	NA	3 (1-10) before treatment + 0 (0-2) post treatment	4 (2-10) before treatment + 0 (0-0) post treatment	0.75:1 before treatment	2 (1-2) before treatment + 0 (0-0) post treatment	In total: 14 (13-31)	No re-exploration rFVIIa stopped bleeding in the OR	1/7 (14%)	NA	NA	NA	NA	40 (26-111) µg/kg	NA

Approx: Approximately, RBC: Red Blood Cells, FFP: Fresh Frozen Plasma, PLT: Platelets, DDAVP: Desmopressin acetate, PCC: Prothrombin Complex Concentrate, rFVIIa: recombinant Factor VII, FXIII: clotting Factor XIII, pts: patients.