

Table 1. An overview of the included studies

Study	Number of participants	Type ECMO (n of patients)	Age, median (IQR) Unless otherwise reported	Sex, male, n (%)	Indication for ECMO	aPTT aim (s)
Comparison 1: bivalirudin versus unfractionated heparin						
Pieri, 2021*	Total: 125 Hep.: 26 Biv.: 99	VV-ECMO only	N.R.	Total: 93 (74%)	ARDS only	Hep.: 55–60 Biv.:55–60
Sheridan, 2021*	Total: 150 Hep.: 50 Biv.: 100	VV-ECMO: 62 VA-ECMO: 88	Total: mean 53 (SD 14.5) Hep.: mean 53 (SD 14) Biv.: mean 54 (SD 15)	Total: 106 (71%) Hep.: 32 (64%) Biv.: 74 (74%)	CS: 58 Resp. fail.: 59 PE: 10 CPB weaning: 11 Others:12	Hep.: <95 and anti-FXa 0.3-0.7 IU/mL Biv.:45-75
Seelhammer, 2021*	Total: 333 Hep.: 223 Biv.: 110	VV-ECMO: 56 VA-ECMO: 277	N.R.	Total: 265 (80%) Hep.: 183 (82%) Biv.: 82 (75%)	Post cardiotomy: 162 CS: 100 Resp. fail.: 86 eCPR: 69 Transplant: 5	Hep.: 60–90 Biv.: 60–80
Rivosecchi, 2021*	Total: 295 Hep.: 162 Biv.: 133	VV-ECMO only	Hep.: 49 (36,61) Biv.: 49 (36,61)	Total: 146 (50%) Hep.: 95 (59%) Biv.: 81 (61%)	Resp. fail.: 145 Pre/post-transplant: 108 Post cardiotomy: 20 Others: 22	Hep.: anti-FXa 0.25–0.35 IU/mL Biv.: 60–75
Kaseer, 2020*	Total: 52 Hep.: 33 Biv.: 19	VV-ECMO: 24 VA-ECMO: 28	Total: 55 (18, 83) Hep.: 53 (21, 83) Biv.: 56 (18, 71)	Total: 37 (72%) Hep.: 25 (76%) Biv.: 12 (63%)	CS:15 ARDS:24 Transplant: 17 Others:1	Hep.: 50–70 or 40–60 Biv.: 60–90 or 50–70
Macielak, 2019*	Total: 153 Hep.: 100 Biv.: 10 Switched Hep/Biv.: 43	VA-ECMO: 134 Other types not reported	Total: mean 52.8 (SD 14.2) Hep.: mean 51.4 (SD 14.0) Biv.: mean 57.9 (SD 13.8)	Total: 127 (83%)	Salvage: 61% CS: 46% ARDS:29% Resp. fail.: 29% CPB weaning: 23% Others: 12%	Hep.: 72–95 Biv.: 60–80
Berei, 2018*	Total: 72 Hep.: 28 Biv.: 44	VV-ECMO: 6 VA-ECMO: 66	Hep.: mean 55.9 (SD 13.1) Biv.: mean 55.2 9SD 15.2)	Total: 47 (65%) Hep.: 18 (64%) Biv.: 29 (66%)	CS: 51 Sepsis: 11 Resp. fail.: 4	Hep.: 45–65 or 65–90

					Others: 6	Biv.: 45–65 or 65–90
Pieri, 2013*	Total: 20 Hep.: 10 Biv.: 10	VV-ECMO: 10 VA-ECMO: 10	Hep.: mean 54 (SD 12.7) Biv.: mean 59.5 (SD 14.4)	Total: 16 (80%) Hep.: 9 (90%) Biv.: 7 (70%)	N.R.	Hep.: 45–60 Biv.: 45–60
Uricchio, 2022	Total: 143 Hep.: 89 Biv.: 54	VA-ECMO only	Hep.: 53 (42-62) Biv.: 53 (40-60)	Hep.: 39 (72%) Biv.: 63 (71%)	Refractory cardiogenic shock without a previous requirement of cardiopulmonary bypass	N.R.
Comparison 2: argatroban versus unfractionated heparin						
Fisser, 2021*	Total: 117 Hep.: 78 Arg.: 39	VV-ECMO only	Hep.: 56 (48,63) Arg.: 55 (46,61)	Total: 80 (68%) Hep.: 51 (65%) Arg.: 29 (74%)	ARDS only	Hep.: 45–55 Arg.:45–55
Cho, 2021*	Total: 35 Hep.: 24 Arg.: 11	VV-ECMO: 21 VA-ECMO: 10 Hybrid: 4	Total: mean 46 (SD 17) Hep.: mean 45 (SD 16) Arg.: mean 49 (SD 20)	Total: 22 (63%) Hep.: 15 (63%) Arg.: 7 (64%)	N.R.	Hep.: 40–60 or 60–80 (high dose) Arg.:43–85
Comparison 3: low-molecular-weight heparin versus unfractionated heparin						
Wiegele, 2022	Total: 98 Hep.: 62 Enoxaparin: 36	N.R.**	Hep.: 57 (53-62.8) Enoxaparin: 57 (50.8-61)	Hep.: 48 (77%) Enoxaparin: 21 (58%)	ECMO therapy was provided as a last resort option after conventional treatment strategies (e.g., prone positioning, neuromuscular blockade) had failed or in the case of life-threatening hypoxia to avoid cardiopulmonary resuscitation.	Hep.: 50–60
Piowarczyk, 2021	Total: 67 Hep.: 32 Nadroparin: 35	VV-ECMO only	Hep.: 50.3 (41-58.5) Nadroparin: 46.8 (35-59)	Hep.: 28 (80%) Nadroparin: 25 (78%)	Adult patients with severe acute respiratory distress syndrome (ARDS) and partial pressure of oxygen (PaO ₂)/fraction of inspired oxygen (FiO ₂) ratio (PFR) below 80 resistant to conventional treatment, potentially reversible cause of respiratory failure, and duration of mechanical ventilation not exceeding 10 days.	Hep.: 60–80

* Study included in M'Pembele (2022). ** Veno-venous cannulation accounted for the majority of patients in both groups, and veno-arterial or veno-veno-arterial, as used in situations of combined cardiac and respiratory failure, for the remainder.

Abbreviations: N.R., not reported; ECMO, extracorporeal life support; aPTT, Activated Partial Thromboplastin Clotting Time.

N.B. Only adult patients were included. Results from Seelhammer (2021) were subtracted from the original study publication to obtain data of only adult patients.