Table S1 Procedural characteristics and neuroprotective measures

First author, publication year	Procedures studied	Diseases studied	Urgencies studied	Neuroprotective measures reported*
Acher (26), 2016	Standard TEVAR	Multiple	Multiple	Preoperative LSA revascularization Intraoperative MAP, Hb and SpO_2 maintenance
Adams (27), 2019	Standard TEVAR	Multiple	Multiple	Preoperative LSA revascularization
Addas (28), 2022	Standard TEVAR F/BEVAR	Thoracoabdominal aortic aneurysm	Elective	Preoperative MISACE procedure
Angiletta (29), 2021	F/BEVAR	Thoracoabdominal aortic aneurysm	Multiple	Preoperative LSA revascularisation Intraoperative MAP and Hb maintenance
Arnaoutakis (30), 2014	Standard TEVAR	Multiple	Multiple	Preoperative LSA revascularisation
Banno (31), 2021	Standard TEVAR	Thoracic aortic aneurysm	Multiple	Intraoperative MAP maintenance
Bisdas (18), 2015	F/BEVAR	Thoracic aortic aneurysm	Elective	Intraoperative MAP and APTT maintenance
Bobadilla (32), 2013	Standard TEVAR	Multiple	Multiple	Preoperative LSA revascularisation Intraoperative MAP and hypothermia maintenance
Chaudhary (33), 2021	Standard TEVAR	Multiple	Multiple	Intraoperative MAP and SCPP maintenance Intraoperative SSEP or MEP monitoring
Cheung (34), 2005	Standard TEVAR	Thoracic aortic aneurysm	Multiple	Intraoperative MAP maintenance Intraoperative SSEP or MEP monitoring
Chuter (35), 2008	BEVAR	Thoracoabdominal aortic aneurysm	Multiple	Intraoperative MAP maintenance
D'Oria (36), 2019	Standard TEVAR FEVAR	Multiple	Elective	Preoperative LSA revascularisation Intraoperative MAP maintenance
D'Souza (37), 2009	Standard TEVAR	Penetrating aortic ulcer Intramedullary hematoma	Urgent or Emergent	Preoperative LSA revascularisation Intraoperative APTT maintenance
Desart (38), 2013	Standard TEVAR	Multiple	Multiple	Preoperative LSA revascularisation Intraoperative MAP, Hb, SpO_2, APTT, and CI maintenance
Fossaceca (39), 2013	Standard TEVAR	Thoracic aortic aneurysm	Multiple	Preoperative LSA revascularisation
Hiraoka (40), 2018	Standard TEVAR	Multiple	Multiple	Preoperative LSA revascularisation
Hnath (41), 2008	Standard TEVAR	Multiple	Multiple	Preoperative LSA revascularisation Intraoperative MAP maintenance
Iafrancesco (42), 2014	F/BEVAR	Thoracoabdominal aortic aneurysm	Multiple	Intraoperative MAP maintenance
Iyer (43), 2006	Standard TEVAR	Multiple	Multiple	Preoperative LSA revascularisation
Juszczak (19), 2019	Standard TEVAR F/BEVAR	Multiple	Elective	Preoperative LSA revascularisation Intraoperative MAP, Hb, SpO_2 maintenance
Kato (44), 2015	Standard TEVAR F/BEVAR	Thoracoabdominal aortic dissection	Emergent	None reported
Khoynezhad (45), 2013	Standard TEVAR	Blunt aortic injury	Emergent	Preoperative LSA revascularisation Intraoperative APTT maintenance
Kitpanit (46), 2021	F/BEVAR	Thoracoabdominal aortic aneurysm	Multiple	Preoperative LSA revascularisation Intraoperative MAP, Hb, APTT maintenance Intraoperative near infrared spectroscopy monitoring
Kotelis (47), 2015	Standard TEVAR	Multiple	Multiple	Preoperative LSA revascularisation Intraoperative MAP and APTT maintenance
Maier (48), 2019	Standard TEVAR	Multiple	Multiple	Preoperative LSA revascularisation Intraoperative MAP maintenance Intraoperative SSEP or MEP monitoring
Maurel (49), 2015	F/BEVAR	Thoracoabdominal aortic aneurysm	Elective or Urgent	Preoperative LSA revascularisation Intraoperative MAP, Hb, SpO_2 and APTT maintenance
Mazzeffi (50), 2018	Standard TEVAR	Multiple	Multiple	Intraoperative MAP and APTT maintenance Intraoperative SSEP or MEP monitoring
Nathan (51), 2015	Standard TEVAR F/BEVAR	Dissection related aneurysmal disease	Multiple	Preoperative LSA revascularisation
Pasqualucci (52), 2020	Standard TEVAR	Thoracic aortic aneurysm	Multiple	Intraoperative MAP, Hb, and SpO_2 maintenance
Preventza (53), 2009	Standard TEVAR	Multiple	Multiple	Preoperative LSA revascularisation Intraoperative MAP and APTT maintenance
Rizk (54), 2021	Standard TEVAR	Multiple	Elective	None reported
Schurink (55), 2007	Standard TEVAR	Multiple	Multiple	Intraoperative SSEP or MEP monitoring
Seike (15), 2022	Standard TEVAR	Thoracic aortic aneurysm	Elective	Intraoperative MAP maintenance Intraoperative SSEP or MEP monitoring
Song (12), 2017	Standard TEVAR	Multiple	Multiple	Preoperative LSA revascularisation
Sugiyama (56), 2022	Standard TEVAR	Multiple	Elective	Intraoperative SSEP or MEP monitoring
Sulzinski (57), 2022	Standard TEVAR	Multiple	Elective	Preoperative LSA revascularisation Intraoperative MAP and Hb maintenance Intraoperative SSEP or MEP monitoring
Verma (58), 2022	Standard TEVAR	Type B Aortic Dissection	Multiple	Preoperative LSA revascularisation Intraoperative MAP maintenance
Verzini (59), 2020	Standard TEVAR F/BEVAR	Dissection related aneurysmal disease	Multiple	Preoperative LSA revascularisation Intraoperative MAP and Hb maintenance
Yang (60), 2019	Standard TEVAR	Multiple	Multiple	Preoperative LSA revascularisation Intraoperative MAP and Hb maintenance Intraoperative SSEP or MEP monitoring
Zipfel (61), 2013	Standard TEVAR F/BEVAR	Multiple	Multiple	Preoperative LSA revascularisation

*, neuroprotective measures not including cerebrospinal fluid drainage. Reporting rates – LSA revascularization (27), MAP (26), Hb (10), APTT (9), SSEP or MEP (9), SpO_2 (5). TEVAR, Thoracic endovascular aortic repair; FEVAR, Fenestrated endovascular aortic repair; BEVAR, Branched endovascular aortic repair; F/BEVAR, Fenestrated/Branched endovascular aortic repair; Somatosensory evoked potentials; MEP, motor evoked potentials; MAP, mean arterial pressure; Hb, hemoglobin; SpO_2, oxygen saturation; APTT, activated partial thromboplastin time; LSA, left subclavian artery; MISACE, minimally invasive segmental artery coil embolization; SCPP, spinal cord perfusion pressure; CI, cardiac index.

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Table S2 CSFD protocol

First author, publication year	Routine or selective	CSFD indications
Acher (26), 2016	Selective	Aortic coverage >12cm
Adams (27), 2019	Selective	Any of the following: 1. Aortic coverage >20cm 2. Coverage of distal descending aorta 3. Prior aortic surgery
Addas (28), 2022	Routine	Routine
Angiletta (29), 2021	Routine	Routine
Arnaoutakis (30), 2014	Selective	As deemed by operating surgeon
Banno (31), 2021	Selective	Aortic coverage >20cm (cases 2008-2012)
Bisdas (18), 2015	Selective	Pre-2013: As deemed by operating surgeon Post-2013: No CSFD in TEVAR protocol
Bobadilla (32), 2013	Routine	Routine
Chaudhary (33), 2021	Selective	Any of the following: 1. >20 cm aortic coverage 2. Coverage of lower 1/3 of aorta 3. Pararenal or Type IV TAAA with planned coverage of >5cm above coeliac artery 4. Prior aortic repair 5. Occlusion of subclavian or internal iliac arteries
Cheung (34), 2005	Selective	As deemed by operating surgeon
Chuter (35), 2008	Routine	Routine
D'Oria (36), 2019	Routine	Routine
D'Souza (37), 2009	Selective	As deemed by operating surgeon
Desart (38), 2013	Selective	As deemed by operating surgeon
Fossaceca (39), 2013	Routine	Routine
Hiraoka (40), 2018	Selective	As deemed by operating surgeon
Hnath (41), 2008	Routine	Routine
Iafrancesco (42), 2014	Routine	Routine
Iyer (43), 2006	Routine	Routine
Juszczak (19), 2019	Selective	Pre-2012: >40mm supraceliac coverage Post-2012: No CSFD in TEVAR protocol
Kato (44), 2015	Selective	As deemed by operating surgeon
Khoynezhad (45), 2013	Selective	As deemed by operating surgeon
Kitpanit (46), 2021	Selective	Any of the following: 1. TAAA Crawford I-III 2. Prior aortic surgery or TEVAR
Kotelis (47), 2015	Routine	Routine
Maier (48), 2019	Routine	Routine
Maurel (49), 2015	Selective	Pre 2010: Not reported Post 2010: All TAAA Crawford I-III
Mazzeffi (50), 2018	Selective	Any of the following: 1. >15cm aortic coverage 2. Prior TEVAR or EVAR 3. Poor pelvic perfusion 4. Occluded abdominal aorta
Nathan (51), 2015	Selective	DNR or "high risk" as deemed by operating surgeon
Pasqualucci (52), 2020	Routine	Routine
Preventza (53), 2009	Selective	Any of the following: 1. Prior aortic surgery 2. >20cm aortic coverage
Rizk (54), 2021	Routine	Routine
Schurink (55), 2007	Routine	Routine
Seike (15), 2022	Selective	Any of the following: 1. Aortic coverage of intercostal arteries branching from AKA 2. Aortic coverage of >8 vertebrae 3. Prior aortic repair 4. Shaggy aorta
Song (12), 2017	Selective	Any of the following: 1. Aortic coverage of LSA 2. Aortic coverage >30cm 3. Prior aortic repair 4. Aortic coverage of intercostal arteries 5. Aortic coverage of important vertebral, pelvic, and hypogastric arteries 6. Shaggy aorta
Sugiyama (56), 2022	Routine	Routine
Sulzinski (57), 2022	Routine	Routine
Verma (58), 2022	Selective	Hypoplastic or atretic right vertebral artery
Verzini (59), 2020	Routine	Routine
Yang (60), 2019	Selective	Any of the following: 1. Aortic coverage >20cm 2. Prior aortic surgery 3. Bilateral internal iliac artery coverage
Zipfel (61), 2013	Selective	Aortic coverage >20cm

Most commonly reported CSFD drainage duration per protocol was 48-72 hours (range from 6 hours to 120 hours). Mean CSFD was 222 mL (range 46-714 mL). The most commonly reported CSFD target intraoperatively was <10 mmHg (Garrido, Iafrancesco, Kotelis, Mazzeffi, Pasqualucci, Song, Verma, Yang), followed by <15 mmHg (Arnaoutakis, Chaudhary, Hnath, Rizk, Seike, Sulzinski), then by <12 mmHg (Cheung, D'Oria, Preventza, Sugiyama, Verzini), then by <8 mmHg (Acher, Bobadilla), and by <7.3 mmHg (Kato, Maurel), and <8.8 mmHg (Kitpanit). CSFD, cerebrospinal fluid drainage; TAAA, thoracoabdominal aortic aneurysm; TEVAR, thoracic endovascular aortic repair; EVAR, endovascular aortic repair; LSA, left subclavian artery; AKA, Artery of Adamkiewicz.

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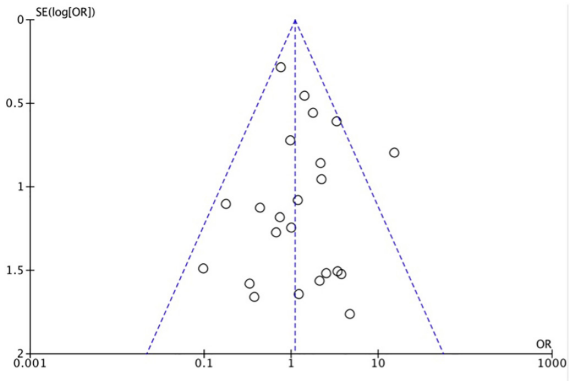

Figure S1 Funnel plot for any SCI in CSFD *vs.* non-CSFD patients.

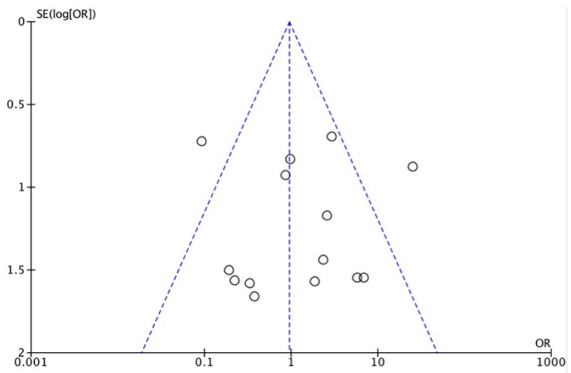

Figure S2 Funnel plot for permanent SCI in CSFD *vs.* non-CSFD patients.

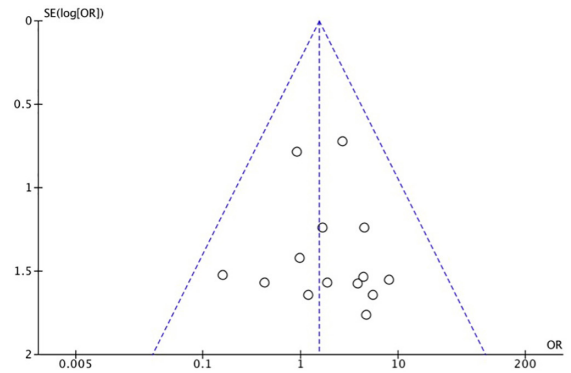

Figure S3 Funnel plot for transient SCI in CSFD *vs.* non-CSFD patients.

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