

TABLES

Table 1- Summary of baseline characteristics

	No of patients	Age, mean	Male/Female	DM	HTN	COPD	CAD	Smoking	Redo surgery	Prior stroke	CKD
Akbulut 2019	41	51.9	29/12	5	34	4	4	NA	3	3	6
Berger 2018	31	64	24/7	0	25	4	10	NA	7	2	2
Chen 2014	122	50.9	95/27	11	93	NA	NA	NA	NA	NA	3
Chen 2016	33	48.6	27/6	1	27	NA	NA	13	NA	NA	NA
Chen 2018	68	58	57/11	7	59	6	11	29	1	7	7
Furutachi 2019	20	58.8	15/5	1	13	NA	2	NA	NA	2	NA
Goebel 2018	72	59.4	55/17	3	68	9	NA	NA	4	NA	9
Gong 2019	112	47.7	83/29	6	89	3	5	55	NA	NA	NA
Guan 2016	62	53.9	44/18	52	60	NA	6	38	NA	2	NA
Guan 2018	126	47.6	96/30	8	106	2	5	63	NA	8	NA
He 2019	59	51.3	47/12	3	30	NA	1	2	NA	NA	23
Hoffman 2013	32	58	26/6	NA	NA	4	4	NA	NA	4	1
Hohri 2019	33	67.8	19/14	3	21	NA	NA	NA	NA	1	2
Jiang 2019	153	51.6	115/38	6	127	NA	NA	NA	0	0	NA
Katayama 2015	120	64.4	64/56	NA	NA	NA	10	NA	NA	23	8
Kobayashi 2016	34	59.1	12/22	2	21	2	3	10	NA	2	NA
Koechlin 2020	69	62.1	48/21	1	34	4	9	NA	NA	19	4
Leontyev 2016	170	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Li 2019	148	41.5	103/45	3	49	1	NA	NA	4	1	NA
Ma 2014	456	46.2	376/80	14	333	NA	18	NA	NA	12	10
Ma 2016	99	48	84/15	27	64	NA	NA	NA	NA	NA	NA
Ma 2018	132	46.9	108/24	31	97	4	5	NA	9	4	NA
Mariscalco 2019	66	62	39/27	15	38	7	NA	NA	3	NA	NA
Roselli 2018	72	59	51/21	NA	NA	NA	NA	NA	9	6	NA
Shen 2012	38	45	28/10	NA	21	NA	NA	NA	NA	3	NA
Shi 2014	54	59.7	37/17	13	40	NA	2	NA	NA	2	3
Shrestha 2015	67	57	53/14	NA	NA	NA	NA	NA	5	NA	NA
Sun 2011	148	45	126/22	6	107	NA	7	NA	NA	1	9
Tan 2018	110	48	86/24	2	77	NA	4	NA	2	6	NA
Xiao 2014	33	48	24/9	NA	18	NA	NA	NA	21	NA	1
Yamamoto 2019	108	66.5	50/58	4	32	4	1	NA	NA	11	4
Yang 2014	86	45.2	69/17	12	73	8	13	NA	NA	3	5
Yoshitake 2020	139	59.6	95/44	NA	NA	NA	NA	NA	NA	NA	20
Yu 2018	21	48.6	18/3	2	17	NA	NA	NA	NA	NA	2

Zhang 2014	88	45.5	74/14	4	64	16	8	NA	NA	1	3
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* Values are presented as mean or number

CAD = coronary artery disease; CKD = chronic kidney disease; COPD = chronic obstructive pulmonary disease; DM = diabetes mellitus; HTN = hypertension; NA = not available

Table 2- Summary of surgical features

	Urgent/Emergent	Cannulation		Concomitant root surgery			ACP	CPB time, min	AOX time, min	HCA time, min	Hypothermia temperature	Operation time, min	NIRS	Stent type and number of patients implanted	Stent length, cm	Supraaortic branch implantation	LSA implantation	Intraoperative blood transfusion, ml
		Innominate	Axillary	Bentall	David	Ascending aorta replacement												
Akbulut 2019	NA	41 (100)	NA	4 (9.7)	NA	NA	41 (100)	205.3	NA	NA	25.8	NA	NA	E-vita (JOTEC™ GmbH, Hechingen, Germany), 41 (100)	NA	Enblock 41(100)	NA	NA
Berger 2018	NA	NA	31 (100)	4 (16.1)	2 (16.1)	NA	31 (100)	228	135	NA	24	NA	31 (100)	Thoraflex (Vascutek, Inchinnan, UK), 31 (100)	10	NA	NA	NA
Chen 2014	NA	NA	122 (100)	19 (15.5)	64 (52.4)	NA	122 (100)	186.5	78.2	31.9	22	NA	NA	3-branched stent graft (Yuhengjia Science and Technology, Beijing, China), 122 (100)	NA	NA	NA	NA
Chen 2016	NA	NA	22 (100)	NA	NA	NA	22 (100)	141.5	103	40.8	18-22	NA	NA	Prosthetic graft (Boston Scientific, Boston, MA, USA), 22 (66.7) and Triple-branched stent graft, 11 (33.3)*	NA	Individual 22 (100)	Insitu 22 (100)	NA
Chen 2018	NA	NA	65 (95.5)	NA	NA	NA	65 (95.5)	221.8	116	33	24.8	344.5	NA	4-branched graft (Gelweave Plexus; Terumo, Vascutek, Scotland), 68 (100)	11.2	NA	NA	1325
Furutachi 2019	NA	NA	NA	1 (5)		NA	20 (100)	233.9	175.9	NA	25	474.5	NA	Frozenix (Japan Lifeline, Tokyo, Japan), 20 (100)	NA	Individual 20 (100)	Insitu 20 (100)	4032
Goebel 2018	72 (100)	NA	63 (87.5)	20 (27.7)	28 (38.8)	NA	72 (100)	220	157	NA	28	NA	72 (100)	E-vita (JOTEC™ GmbH, Hechingen, Germany), 72 (100)	13	Enblock 72 (100)	Insitu 72 (100)	2250
Gong 2019	112 (100)	NA	112 (100)	NA	NA	NA	112 (100)	211.7	124.4	27.5	22.9	502	NA	Specific stented graft, 112 (100)	NA	Individual 112 (100)	Insitu 112 (100)	NA
Guan 2016	62 (100)	NA	62	NA	NA	39 (62.9)	62	211	122.6	25.1	18 to	594	NA	Specific stented graft,	NA	NA	NA	300

			(100)				(100)				25			62 (100)				
Guan 2018	126 (100)	NA	126 (100)	NA	NA	50 (39.7)	126 (100)	215 .4	125.4	27.2 5	18-28	516.6	NA	Specific stented graft, 126 (100)	NA	NA	NA	1114
He 2019	NA	NA	59 (100)	8 (13.5)	4 (6.7)	NA	59 (100)	217 .4	147.4	4.9	30	456	NA	Cronus (MicroPort Medical, Shanghai, China), 59 (100)	12 or 15	NA	NA	NA
Hoffman 2013	NA	NA	32 (100)	6 (15.6)	5 (15.6)	NA	3 (9.3)	NA	NA	NA	20	NA	NA	E-vita (JOTEC™ GmbH, Hechingen, Germany), 32 (100)	15 or 16	Individual 3 (9.3) Enblock 29 (90.7)	Insitu 3 (9.3)	NA
Hohri 2019	NA	NA	NA	0		NA	33 (100)	192 .4	NA	NA	28	NA	NA	Frozenix (Japan Lifeline, Tokyo, Japan), 33 (100)	9 (13 pts) or 12 (20 pts)	Individual 33 (100)	Extra-anatomic bypass 33 (100)	NA
Jiang 2019	NA	137 (89.5)	NA	18 (11.7)	1	126 (82.3)	153 (100)	171 .6	NA	NA	27	NA	153 (100)	Thoraflex (Vascutek, Inchinnan, UK), 153 (100)	NA	Individual 153 (100)	Insitu 153 (100)	NA
Katayama 2015	NA	NA	24 (20)	NA	NA	NA	120 (100)	173	109	NA	NA	373	NA	NA	9.9	NA	NA	NA
Kobayashi 2016	NA	NA	34 (100)	NA	NA	NA	34 (100)	NA	NA	NA	20-24	NA	NA	E-vita (JOTEC™ GmbH, Hechingen, Germany), 23 (67.7); Talent (Medtronic, MN, USA) 5 (14.7); and GORE TAG (WL Gore, AZ, USA), 6 (17.6)	10 or 13		NA	NA
Koechlin 2020	NA	NA	NA	NA	NA	NA	69 (100)	157 .5	99.1	31.2	20	NA	NA	GORE TAG (WL Gore, AZ, USA), 69 (100)	15	NA	NA	NA
Leontyev 2016	NA	NA	NA	NA	NA	NA	170 (100)	NA	NA	NA	NA	NA	NA	E-vita (JOTEC™ GmbH, Hechingen, Germany), 170 (100)	NA	NA	NA	NA
Li 2019	NA	NA	NA	93 (62.8)	55 (37.9)	NA	148 (100)	205	140	25	20-22	NA	NA	Cronus (MicroPort Medical, Shanghai, China), 148 (100)	NA	NA	NA	NA
Ma 2014	NA	NA	456 (100)	130 (28.5)	1 (0.2)	NA	NA	199	112	25	25	NA	NA	Cronus (MicroPort Medical, Shanghai, China), 456 (100)	NA	NA	NA	NA
Ma 2016	NA	NA	95 (95.9)	33 (33.3)		NA	99 (100)	227 .9	127.6	29.8	20.6	508.8	NA	Cronus (MicroPort Medical, Shanghai, China), 99 (100)	10	NA	NA	1425
Ma 2018	83 (62.8)	NA	132 (100)	47 (35.6)		NA	132 (100)	243	121.5	26.5	21.5	537	NA	Cronus (MicroPort Medical, Shanghai, China), 132 (100)	NA	Individual 132 (100)	Insitu 132 (100)	1875
Mariscalco 2019	NA	NA	NA	NA	NA	NA	66 (100)	338	197	NA	18-25	NA	NA	Thoraflex (Vascutek, Inchinnan, UK), 66	NA	NA	NA	NA

														(100)				
Roselli 2018	72 (100)	NA	NA	5 (6.9)	6 (8.3)	NA	72 (100)	NA	NA	33	20	NA	NA	Early-generation stent graft, 39 (54.2); Stent graft modified intraoperative fenestration, 16 (22.2); and branched single anastomosis with left subclavian stent grafting, 17 (23.6)	<15	NA	NA	NA
Shen 2012	NA	NA	38 (100)	NA	NA	NA	NA	158 .5	116.3	38	22	NA	NA	3-branched stent graft (Yuhengjia Science and Technology, Beijing, China), 38 (100)	14.5	NA	NA	NA
Shi 2014	NA	NA	NA	15 (27.7)	3 (5.5)	NA	NA	95. 7	75.8	28.5	25	NA	NA	Cronus (MicroPort Medical, Shanghai, China), 54 (100)	8 to 10	NA	NA	NA
Shrestha 2015	NA	67 (100)	NA	14 (20.8)	30 (44.7)	NA	67 (100)	253	NA	53	22-24	370	NA	E-vita (JOTEC™ GmbH, Hechingen, Germany), Thoraflex (Vascutek, Inchinnan, UK), and custom-made Chavan-Haverich (Curative GmbH, Dresden, Germany)	10	Individual 67 (100)	Insitu 67 (100)	1500
Sun 2011	NA	NA	148 (100)	32 (21.6)	0	NA	148 (100)	197	107	NA	18-22	NA	NA	Cronus (MicroPort Medical, Shanghai, China), 148 (100)	NA	Individual 148 (100)	Insitu 148 (100)	NA
Tan 2018	110 (100)	NA	NA	20 (18.1)	4 (3.6)	NA	110 (100)	215	84	NA	25	NA	NA	Cronus (MicroPort Medical, Shanghai, China), 110 (100)	12	Individual 110 (100)	Insitu 110 (100)	NA
Xiao 2014	33 (100)	NA	NA	9 (27.2)		15 (45.5)	33 (100)	296 .9	174.2	52.2	18.9	NA	NA	Cronus (MicroPort Medical, Shanghai, China), 33 (100)	10	NA	Extra-anatomic bypass 33 (100)	NA
Yamamoto 2019	108 (100)	NA	108 (100)	1 (0.9)		108 (100)	108 (100)	212	122	NA	25	NA	NA	Frozenix (Japan Lifeline, Tokyo, Japan), 108 (100)	NA	Individual 108 (100)	Insitu 108 (100)	NA
Yang 2014	86 (100)	NA	86 (100)	46 (53.4)	12 (13.9)	26 (30.2)	86 (100)	186 .3	102.6	18.5	18-22	NA	86 (100)	Cronus (MicroPort Medical, Shanghai, China), 86 (100)	12	Individual 86 (100)	Insitu 86 (100)	NA
Yoshitake 2020	NA	NA	NA	NA	NA	NA	NA	252	NA	NA	25-27	NA	NA	Custom-made graft, 40 (28.8) and Frozenix (Japan Lifeline, Tokyo, Japan), 99 (71.2)	NA	Individual 139 (100)	Insitu 139 (100)	NA

Yu 2018	NA	NA	NA	12 (57.1)		NA	21 (100)	210 .2	94.9	NA	23-25	NA	NA	Xuper double- branched stent graft (Lifetech Scientific Co.), 21 (100)	NA	NA	Insitu 21 (100)	NA
Zhang 2014	88 (100)	NA	81 (92)	29 (32.9)	4 (4.5)	NA	81 (92)	182 .4	113.4	35.4	26-28	NA	NA	Cronus (MicroPort Medical, Shanghai, China), 88 (100)	NA	Individu al 88 (100)	NA	NA

* Values are presented as mean or number (percentage)

** These patients underwent the Sun's procedure

ACP = antegrade cerebral perfusion; AOX = aortic cross-clamp time; CPB = cardiopulmonary bypass time; HCA = hypothermic circulatory arrest; LSA = left subclavian artery; NIRS = near-infrared spectroscopy