

Annual Report of Cardiovascular Surgery 2020

Nagasaki University

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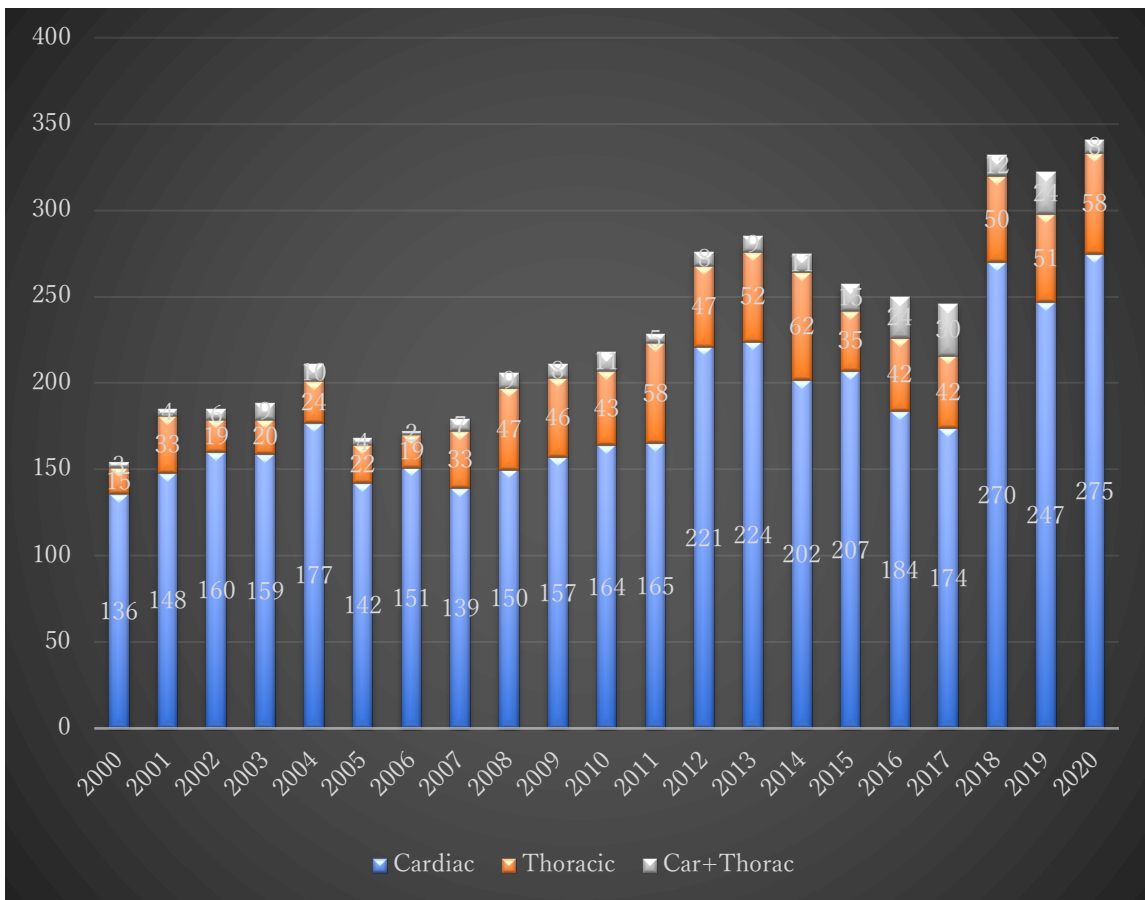
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~ Overall~

I . Number of Operations and Surgical mortality

Division	No. OP.	No. Cases	OP. mortality (%)	Hosp. mortality (%)
Cardiac	275 (62*)	272 (62*)	3 (1.1)	3 (1.1)
Car. + Thoracic	8	8	0	0
Thoracic	58	58	2 (3.4)	2 (3.4)
Total	341 (62*)	338 (62*)	5 (1.5)	5 (1.5)
Abdominal aorta	33	33	0	0
Peripheral	30	29	0	0
Total	404	400	5 (1.2)	5 (1.2)

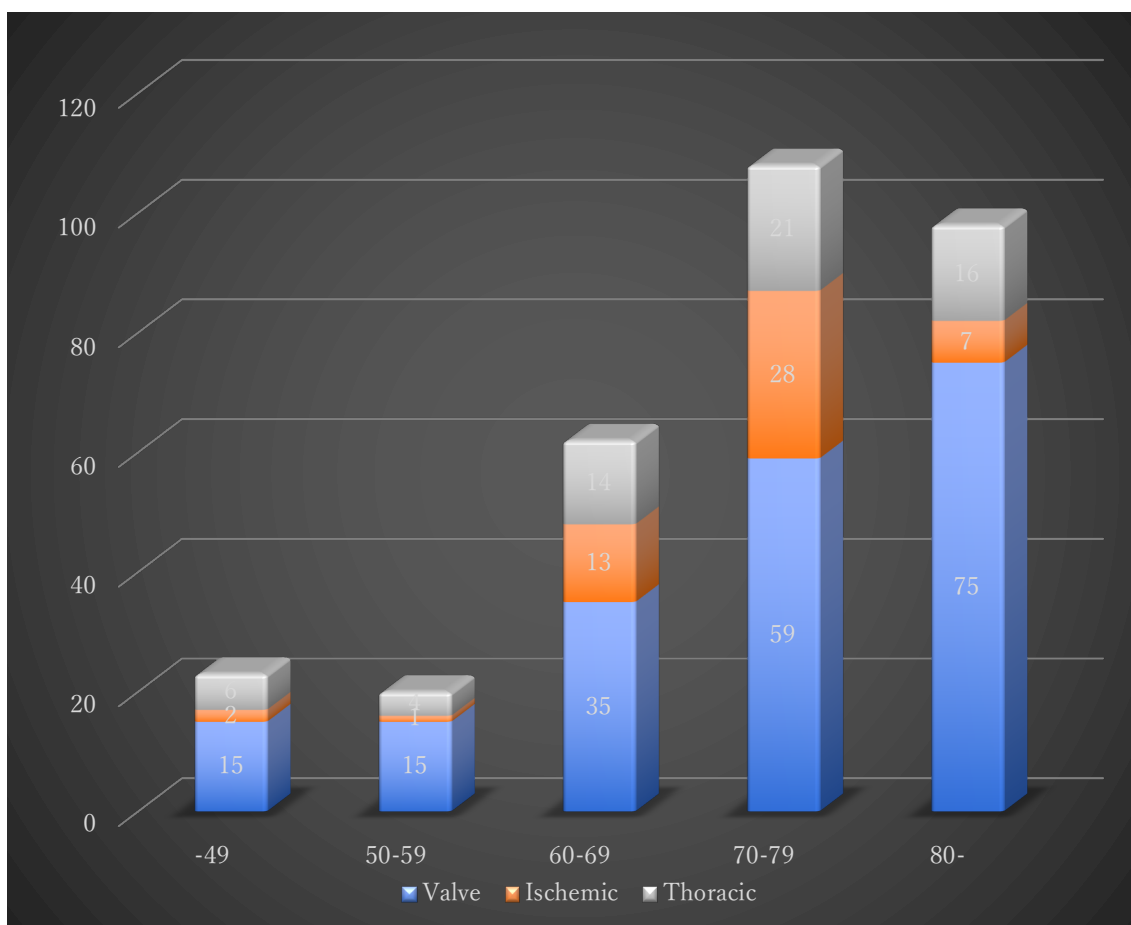
*TAVI



II . Mode of Operation

	Total	Scheduled (%)	Urgent (%)	Emergent (%)
Ischemic	51	38 (74.5)	5 (9.8)	8 (15.7)
Valvular	199	178 (89.4)	12 (6.0)	9 (4.5)
Congenital	8	5 (62.5)	0	3 (37.5)
Others	22	10 (45.5)	1 (4.5)	11 (50.0)
Thoracic aorta	61	29 (47.5)	2 (3.3)	30 (49.2)
Abdominal aorta	33	29 (87.9)	0	4 (12.1)
Peripheral artery	30	8 (26.7)	8 (26.7)	14 (46.7)
Total	404	297 (73.5)	28 (6.9)	79 (19.6)

III. Age Distribution



~ Summary of Cardio-Vascular Division ~

I . Number of Operations and Surgical Mortality

	No. OP.	No. Cases	OP. mortality (%)	Hosp. mortality (%)
<u>Cardiac</u>				
Valvular	214	213	3 (1.4)	3 (1.4) ^{#1, 2, 3}
(redo)	(35)	(34)	0	0
Ischemic	70	70	0	0
(redo)	(1)	(1)	0	0
Congenital	15	15	0	0
Others	55	52	0	0
<u>Vascular</u>				
Thoracic aorta	66	66	2 (3.0)	2 (3.0) ^{#4, 5}
(redo)	(7)	(7)	0	0
(Stent graft)	(22)	(22)	0	0
Abdominal aorta	35	35	0	0
(Stent graft)	(16)	(16)	0	0
Peripheral artery	35	34	0	0

Concomitant Procedure

Valvular (only): 143 cases

Valvular + Congenital: 4 case

CABG (only): 38 cases

Valvular + Others: 36 cases

Congenital (only): 8 cases

CABG + Thoracic aorta: 3 cases

Others (only): 23 cases

CABG + Others: 7 cases

Thoracic aorta (only): 52 cases

Thoracic + Extra: 3 case

Valvular + CABG: 20 cases

Congenital + Others: 0 case

Valvular + Thoracic aorta: 7 cases

Valvular + Thoracic aorta + CABG: 1 case

Valvular + Congenital + Others: 2 case

Valvular + + CABG + Others: 5 case

II . Valvular Heart Disease

	No. OP.	No. Cases	OP mortality	Hosp. mortality
Aortic *	126	126	2	2 ^{#1, 3}
Mitral	36	36	0	0
Tricuspid	7	7	0	0
Pulmonary	5	5	0	0
Combined				
A+M *	16	16	0	0
M+T	17	17	1	1 ^{#2}
A+M+T *	5	5	0	0
A+T *	2	2	0	0
Total	214	214	3 (1.4)	3 (1.4)

*: AVR 70, Bentall 3, Reimplantation only 3, Reimplantation +AVP 1, AVP only 2, Total Root Remodeling only 2, Total Root Remodeling +AVP 7, TAVI-TF 62

a) Mitral valve disease

Diagnosis

MR	MS	MSR	Total	MVR (%)	Repair (%)
67	5	3	75	13 (17.3)	62 (82.7)

b) Mitral valve repair

Etiology

Congenital	Infectious	Degenerative	Rheumatic	Ischemic	DCM	Others
1	11	49	3	1	2	8

Post ope. follow up

Jet area	Intra. Op. n = 61	Follow(∼12M), n = 61
non to trivial (0-2cm ²)	47	44
Mild (2-4cm ²)	13	13
mild to moderate, (4-8cm ²)	1 (re-MP)	4
moderate to severe, (8cm ² -)	0	0

c) Valve substitutes implanted

	Mechanical	Tissue	Total
AVR	18	115*	133*
MVR	7	6	13
TVR	0	0	0
PVR	0	5	5
Total	25	126	151*

(TAVI: 62 cases)

d) Minimally invasive cardiac surgery

Procedures	No. Op.
MP*	29 (4)
MVR**	4 (2)
AVR	2
ASD/PFO	4
TP	3
MIDCAB	0
LA mass/ thrombus	2
Total	41

() redo

*) MP isolated ($\pm$ Maze, LAAP) 22

MP+TAP ($\pm$ Maze, LAAP) 7

**) MVR isolated ($\pm$ Maze, LAAP) 3

MVR+TAP 1

LAAP: LA Appendage plication

III. Ischemic heart disease

	Total	Isolated CABG	Op. Mortality	Hosp. Mortality
SVD	25	8	0	0
DVD	16	7	0	0
TVD	19	16	0	0
LMT	13	12	0	0
Total	73	43	0	0

Conventional CABG: 54 cases

Off pump CABG: 13 cases

On pump beating CABG: 6 cases

a) Conduit 2.0 / patient

	ITA	SVG	Cases
SVD	12	15	27
DVD	15	17	15
TVD	19	36	19
LMT	16	16	13
Total	62	85	147 / 74 cases

b) Anastomoses 2.1 / patient

No. Anastomoses	No. Cases (%)
1	27 (37.0)
2	17 (23.3)
3	25 (34.2)
4	4 (5.5)
Total Cases	73
Total anast.	152

b') Anastomoses by OPCAB

2.0 / patient

No. Anastomoses	No. Cases (%)
1	5 (38.5)
2	3 (23.1)
3	5 (38.5)
Total Cases	13
Total anast.	26

c) Anastomoses

No. Anastomoses	1	2	3	4	No. OP.
SVD	25	1	0	0	26
DVD	0	13	2	0	15
TVD	0	0	17	2	19
LMT	2	3	6	2	13
Total cases	27	17	25	4	73
Total anast.	27	34	75	16	152

d) Graft patency

	No. of grafts	Examined	Patent	Patency Rate (%)
<u>Artery</u>	62	59	59	100
LITA	56	53	53	100
RITA	6	6	6	100
<u>SVG</u>	86	78	77	98.7
Total	148	137	136	99.3

IV. Congenital heart disease

	No. Cases	No. OP.	OP. mortality	Hosp. mortality
ASD/PFO	9	9	0	0
VSD	2	2	0	0
PDA	4	4	0	0
Total	15	15	0	0

V. Others

	No. OP.	No. Cases	OP. mortality	Hosp. mortality
Cardiac tumor	3	3	0	0
Thrombus/ CAT	2	2	0	0
Surgical ventricular repair	1	1	0	0
VAS implantation	1	1	0	0
Bleeding (LV rupture)	11	11	0	0
Pericardiectomy	2	2	0	0
Morrow / Myectomy	3	3	0	0
LAAP	13	13	0	0
Atrial Fibrillation Surgery	30	30	0	0
Pulmonary endarterectomy	0	0	0	0
Other	7	7	0	0
Total	74	74	0	0

VI. Maze operation

	Device	SR recover / Total cases
Full Maze*, n = 1	cryo-ICE	1/1 (100)
LA Maze**, n = 21	cryo-ICE	17 / 21 (81.0)
PV isolation only, n=8	Atri-cure (Clamp type)	3 / 8 (37.5)
Total, n = 30		21 / 30 (70.0)

* PV isolation + mitral isthmus ablation + RA Maze, ** PV isolation + mitral isthmus ablation

VII. VAD

	No. OP.	No. Cases	OP. mortality	Hosp. mortality
Nipro LVAS	0	0	0	0
HeartMate III	1	1	0	0
Total	1	1	0	0

VIII. Vascular disease

a) Replacement site (Thoracic)

	No. OP.	No. Cases	OP. mortality (%)	Hosp. mortality (%)
Root	6	6	1	1 #4
Ascending aorta	10	10	0	0
Hemiarch	4	4	0	0
Total arch	19	19	1	1 #5
Descending aorta	23	23	0	0
(Stent graft)	(20)	(20)	(0)	(0)
Thoracoabdominal aorta	4	4	0	0
(Stent graft)	(2)	(2)	0	0
Total	66	66	2 (3.0)	2 (3.0)

b) Classification of Thoracic aorta

	No. Cases	Hosp. mortality
<u>Dissection</u>		
Acute	27	2
I	15	1 #5
II	7	0
IIIa	2	0
IIIb	3	1 #4
Chronic	6	0
IIIa	3	0
IIIb	3	0
<u>True</u>	35	0
Root	4	0
Ascending	2	0
Arch	8	0
Descending	18	0
Thoracoabdominal	3	0

Operation method	
Root replacement	
Bentall	4
Reimplantation	3
Total Root Remodeling	2
Bentall + Ascending	2
Reimplantation + Ascending	1
Bentall + TAR	2
Reimplantation + TAR	1
Ascending aorta replacement	14
Hemiarch replacement	5
Total arch replacement (TAR)	12
TAR + OSG	3
TAR+ Descending aorta replacement	2
Descending aorta replacement	4
Thoracoabdominal aorta replacement	1
TEVAR	23
Debranch TEVAR	1

c) Classification of Abdominal aorta, peripheral artery

	No. OP.	No. Cases	OP. mortality (%)	Hosp. mortality (%)
Abdominal aorta	35	35	0	0
(Stent graft)	(16)	(16)	0	0
Peripheral artery	35	35	0	0
Total	70	70	0	0

	No. Cases	Hosp. mortality	Operation method	
<u>Abdominal aorta</u>	35	0		
AAA	31	0	Graft replacement	18
Impending rupture	1	0	EVAR	15
Ruptured	3	0	others	1
ASO	2	0		
Others	2	0		
<u>Peripheral artery</u>	39	0		
ASO	7	0	Thrombectomy	7
Acute arterial occlusion	8	0	Bypass grafting	8
Aneurysm	4	0	Plasty	14
Traumatic	10	0	Resection	0
Others	10	0	Others	10

~ Summary of hospital death ~

No	Age	Gender	Dx	Ope date	Emergency	Risk factors	*1
			Operation procedures	POD (days)	Autopsy	Cause of death	*2
Cardiac 3 cases							
1	78	F	Severe AS, uAP,	3/25	Urgency	CRF on HD, ASO, DM, Caf	39.6
			AVR, CABG	8	Not done	NOMI, MOF	65.4
2	71	M	AIE, MR, TR	12/9	Urgency	Septic shock, CI	58.4
			MVR, TAP	16	Not done	Cerebral hemorrhage	83.5
3	71	F	Severe AS, AP,	12/11	Elective	CRF on HD, ASO, steroid	35. 4
			AVR, CABG, F-F bypass	21	Not done	MOF	55. 2
Thoracic 2 cases							
4	77	M	AAD	10/6	Emergency	p/o AVR, redo	19.8
			基部置換 + 上行置換	1	Not done	MOF	41.7
5	69	M	AAD	7/25	Emergency	Malperfusion	39.0
			基 部 形 成 、 TAR, CABG (Salvage)	2	Not done	Massive CI	72.6
Abdominal: 0 case							
Peripheral 0 case							

* 1 : Japan score 手術死亡 発生予測値

* 2 : Japan score 手術死亡 + 主要合併症 発生予測値

(主要合併症 : Stroke, Newly dialysis, Prolonged ventilation >24hrs, Deep sternal wound infection,

Reoperation for bleeding)

基本的に Japan Score Ver.4 から算出。

各種データの解釈

- 1) OP mortality: 術後 30 日以内の全死亡。Hospital mortality: 術後院内での全死亡。
- 2) Mode of Operation: 二つ以上のカテゴリーを含む手術は主病変と考えられるいずれかのカテゴリーに分類。
- 3) Number of Operations and Surgical: 各手術手技の延べ数を合算。
例: CABG+MP+As.Ao.置換→Ischemic, Valvular, Thoracic aorta のそれぞれに加算。
Bentall1, Reimplantation→ Valvular, Thoracic aorta のそれぞれに加算。
- 4) Valvular Heart Disease: 弁に対する操作を行った (付加手術の有無にかかわらず)症例数、手術数を計算。
- 5) Ischemic Heart Disease: CABG を行った (付加手術の有無にかかわらず)症例数を計算。
- 6) Vascular Disease: Bentall, Reimplantation は Replacement site を新たに Root に分類。ただし Reimplantation+Total Arch Replacement でも Root とする。(2013～)
- 7) Graft patency: 冠動脈 CT による評価が増加したため、分類を Patent, Stenosis (含:occlusion)とした。(2014～)
- 8) MVR 術後の perivalvular leakage 症例に対する修復術は術式を Repair とし、Etiology を Other とした。
- 9) 2016 年の TAVI 開始ともない、TAVI Transfemoral approach, Transapical approach のいずれも Cardiac, Valvular, Tissue valve としてカウントした。
- 10) TRR は Cardiac/Valve/Aortic に分類した。(2017～)
- 11) Number of Operations and Surgical (各手術手技の延べ数)における死亡率算出の対象から、心肺停止蘇生後や PCPS を要するような重症心不全症例、術中の予期しない冠動脈閉塞に対する追加バイパス術などの Salvage 手術を除外することとした。なお、Mode of Operation (主たる手術をカウント、重複なし)では従来通り全ての死亡症例を含んで算出した。(2019～)
- 12) Number of Operations and Surgical における死亡数の欄に死亡症例の通し番号を追記した。(2019～)