

Cardiac Anaesthesia — Status in Malaysia

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Introduction

This is the first time that the cardiothoracic Anesthesiologists from Asean region have gathered here. The occasion provides us with the opportunity to familiarise ourselves with the current developments in this region. A short account of historical tracing would seem appropriate to give an overall picture.

The Beginning

Lady Templer Hospital

This is the first hospital, founded in 1954, that dealt with surgical and medical problems arising from pulmonary tuberculosis which was widespread then. This is the beginning of thoracic surgery in the country. From 1970, it expanded its scope for closed heart and general surgery. The expatriate doctors from British Army serviced the hospital until about 1967. The first Malaysian anaesthesiologist joined the hospital in 1967. The take over by local experts with cardiothoracic training was accomplished over a period of years. The hospital, which was financed partly by government and partly by public was closed in 1986.

The Decade 1980

This is a very significant period in the early development of health delivery system. The aggressive drive to economically uplift the rural people by launching the rural development programs in

1970 began to show the benefits 10 years later. Both the preventive and curative aspects of health were systematically addressed to by government. With further push towards industrialisation in recent years the country has set a pace for growth which is unprecedented in history.

During the early years of development of cardiac surgery, we were focussing more on congenital heart diseases. During the late 80's the emphasis was shifted to bypass surgery for coronary artery diseases.

University of Malaya

The first open heart surgery, closure of an arterial septal defect was performed in 1975 at the University Hospital; and the first coronary bypass surgery in 1984, about 10 years later.

Open heart surgery was done only twice a week in the early years. The professor of anaesthesiologist with his team of qualified anaesthesiologists and nurses provided the anaesthetic service and managed the patients in the intensive care unit. Then all post-cardiac patients were admitted to general intensive care unit.

In 1976, Dr. Kowan Nicki from Australia joined the University Hospital as a visiting professor on a one year fellowship. His appointment was to further speed up the development of cardiac surgery in the hospital. Under his leadership two Malaysian surgeons were trained, and they took over from him when he left in 1978.

By the middle of 1980, the number of cardiac surgeons had increased to four and the department of anaesthesiology had well qualified and ex-

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perience lecturers and professors; all of them trained abroad. It was about this time it was felt that there should be a separate cardiac intensive care unit. This was built in 1984 with the allocation of a special grant from University Hospital.

General Hospital, Kuala Lumpur

This is a 2000 bedded hospital in the capital and is the reference centre for cases from all over the country. In 1982 the government sent a team consisting of anaesthesiologists, perfusionists, lab. technicians and medical officers to Royal Prince Alfred Hospital in Sydney, Australia for 6 months for training in cardi thoracic anaesthesia. The newly trained team, assisted by doctors from Royal Prince Alfred Hospital, started cardiac surgery in 1982.

A 5-bedded area was partitioned off the general intensive care unit to function as a coronary intensive care unit. A well trained and able anaesthesiologist with his team of dedicated doctors provided excellent service in the cardiac theatre and intensive care unit. Gradually and steadily this unit, the first in the Government sector, began coping with more complex problems.

Adequate training programs for the nurses, perfusionists and doctors were instituted. Government continued to provide funds for overseas training for various categories of staff. The unit provided excellent training opportunities for both undergraduate and postgraduate students in anaesthesiology.

It was this unit that eventually grew into the National Heart Institute.

Private Hospitals

Towards the latter half of 1980 three private hospitals; two in Kuala Lumpur and one in Penang, started open heart surgery. The teams consisting of nurses, perfusionists and doctors in Kuala Lumpur private hospitals are all from General Hospital. They have all had overseas exposure initially and after gaining sufficient experience resigned from the government service and joined the private sector.

The private hospital in Penang which has tradi-

tional ties with Loma Linda University Centre, USA, sent their team of nurses and anaesthesiologists there for training. Few of the nurses and the perfusionists were trained at Philippine Heart Centre. With improved facilities, experience and continual updating of equipments and emphasis on training, the number of cardiac surgical cases performed has increased rapidly over the years.

Statistical Analysis

University Hospital Statistics (Table 1)

University Hospital statistics predominated. During the latter half of 1980, coronary artery bypass graft began to assume equal importance. This same pattern of evolution is seen in General Hospital cases shown in Table 2.

Table 1

YEAR	ASD	VSD	CHD	CABG	OTHERS
1990	36	19	8	—	—
1981	46	22	14	—	—
1982	47	38	23	—	—
1983	43	29	28	—	12
1984	55	29	22	5	14
1985	29	33	18	22	16
1986	25	20	21	46	22
1987	32	18	23	49	19
1988	26	21	30	[55
1989	26	17	15	[163	14
1990	-----			[

General Hospital Statistics (Table 2)

Private Hospital Statistics (Table 3)

Private Hospitals, on the other hand, perform more coronary artery bypass surgery than corrective procedures of congenital heart cases.

Total No. of Bypass Cases (Table 4)

With increasing number of open heart surgery being performed the need for the establishment of the National Heart Institute was deeply felt. The Ministry of Health with the approval of the cabinet built a 270 bedded hospital which started functioning in June 1992.

National Heart Institute (Table 5)

The institute receives cases from all over the country, rich or poor. Although it is expected to generate its own fund, the financial assistance by government would be continued until it becomes self reliant.

Table 4

General Hospital	(1982 to 1991)3156
Private Hospitals	(1985 to 1992)1313
University Hospital	(1975 to 1992)

Table 2

	1982	83	84	85	86	87	88	89	90	91	Total
ASD	51	52	68	63	74	94	79	78	71	71	701
VSD	15	22	41	26	31	22	61	43	50	47	358
TOF	9	7	13	15	13	10	31	44	31	39	212
MVR	19	36	41	40	51	55	68	77	70	58	515
DVR	4	11	10	9	3	14	25	22	14	16	128
OMV	13	8	13	14	47	27	38	26	19	12	217
OPV	2	3	2	4	5	6	9	2	0	6	39
CABG	5	21	40	22	25	35	75	111	119	159	612
MISC	1	3	7	9	10	13	23	32	32	31	161
TOTAL	121	181	252	218	282	295	434	479	428	460	3,156

Table 3

	DKMC 1987-1992	PMC 1989-1992	SJMC 1985-1992
1. Coronary artery bypass (CABG)	113	249	505
2. CABG+MVR +AVR +Aneurysmectomy	1	6	8
3. VSD		10	22
4. ASD	16	19	51
5. VSD+ASD	—	—	2
6. MVR	59	46	43
7. AVR	9	15	10
8. TOF	11	3	17
9. [PS [VSDPS [OMV [Aortic Dissection	4	6	11

Table 5

BEDS:	270		
INVASIVE LABS:	3		
ICU BEDS:	18		
SPECIALISTS:	13	[Surgeons	4
		Anaesthesiologists	3
		Cardiologists	6
		[Adult	4
		Paediatric	2
OPERATING THEATRES:	4		
OPERATIONP:	Approximately 5/day		

Anaesthesiologists

The first Malaysian Anaesthesiologist with a fellowship to be appointed as the head of the department was in 1959. Since then many doctors have gone to United Kingdom and Australia for training and returned with fellowships. There are about 120 qualified anaesthesiologists in the country today; and among them about 12 are trained in cardiac anaesthesia.

Since 1985, two local universities have started training doctors in anaesthesia; a four year course offering M. Med. degree in Anaesthesia. During their training for four years, M. Med. postgraduate students are exposed to cardiothoracic anaesthesia for three months. Graduates aspiring to be cardiac anaesthetists are also being trained at the University Hospital and National Heart Institute.

Anaesthesia

For induction, a combination of benzodiazepine, opioid and muscle relaxant is the technique of choice in almost all occasions by majority of anaesthesiologists. Midazolam, fentanyl and pancuronium are the drugs commonly employed. Vecuronium is increasingly being used. Halothane is still widely used but isoflurane, in spite of it being an expensive drug tends to be considered more frequently now.

Continuous arterial and central venous pressures are monitored in all patients. Pulmonary artery pressure monitoring is not employed routinely and is used as an important tool in the post-operative patient with complications. During surgery, direct measurement of left arterial pressure is made as and when required to determine the left ventricular function. Invariably lead II and V5 of ECG are displayed to detect rhythm and ST segment changes. Transoesophageal echo-

cardiography is available in the National Heart Institute but not in other hospitals. Both bubble and membrane oxygenators are in vogue; the latter taking precedence when prolonged bypass is anticipated. Cardioplegia is usually employed in the National Heart Institute but not in other cardiac centres. Most of the patients are extubated within six hours of arrival in the intensive care unit.

It is our practice to provide routine pharmacological support to the myocardium during weaning from the pump. Dobutamine is the first drug of choice whenever inotropic support is thought to be necessary. In low output states, all pharmacological means using combinations of epinephrine, dopamine, dobutamine and a phosphodiesterase III inhibitor; viz. inosin would be considered. Intra-aortic counterpulsation device is readily available in every centre to institute mechanical support and improve myocardial oxygenation.

Vascular Surgery

Vascular surgery is still in its infancy. There are only two adequately trained and qualified vascular surgeons in the country. Their practice mainly constitutes 50% bypass and 50% aneurysmal surgery.

Future

In the immediate future at least 4 more private hospitals would offer facilities for open heart surgery. With rapid industrialisation and improved health care, it is possible to forecast that all these hospitals will have adequately trained staff to cope with growing number of cardiovascular problems. It is hoped that research opportunities will also be created in due course at the Universities and National Heart Institute.

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