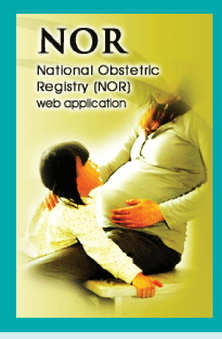
HEART DISEASE IN PREGNANCY

Sudesan R[1],Ganesh RV[1], Rozihan I[1],.SD Karalasingam[2], J Ravichandran[3], J Ravindran[4], SA Soelar[2], N Sa'at[2], N Baharum[2]
1. Hospital Tengku Ampuan Afzan Kuantan 2. National Clinical Research Center 3. Hospital Sultanah Aminah, Johor 4. Hospital Kuala Lumpur



INTRODUCTION

Pregnancy results in extensive physiological changes in the cardiovascular system which extrapolates to strain to the heart and circulation and these changes pose a threat to those with underlying heart disease.[1] The overall incidence is 1% and is on the rise.[2]

METHODOLOGY

This is a retrospective review based on data from the National Obstetrics Registry from 1st January 2011 to 31st December 2012.

A total of 260959 deliveries were analysed. In this study there were a total of 1636 cases that was reviewed, looking at the pregnancy outcomes of mothers with underlying cardiovascular disease.

RESULT

Highest number of cases was seen from Hospital Nur Zahirah, Terengganu at 1.16% and the lowest from Hospital Likas Sabah at 0.11%. Congenital heart disease was more common in Hospital Umum Sarawak at 0.21% followed by Hospital Kuala Lumpur at 0.19% and Hospital Nur Zahirah Terengganu at 0.18%. Ischemic heart disease (IHD) was noted to be higher in the northern region of Perlis, Kedah and Penang. 4.7 % of heart diseases was IHD which is surprisingly seen in reproductive age group. (Graph 1).

The overall incidence was in the tertiary hospitals in Malaysia was 0.63%. (Table 1).The highest incidence was seen in Malay ethnicity at 0.5% and there were no reported cases in the Melanau community. (Table 2). Acquired and congenital heart diseases contributed to 21% and 19.3% of total heart diseases in this study. From the cases that was studied patients with NYHA Class I & II represented the bulk of cases at 66.7% and NYHA Class III & IV were merely at 2.1%. (Table 4). Parity 2 and more were complicated by heart disease at 0.3% whereas acquired heart disease was higher among para 6 and more at 0.2% (Table 5).

2.3% of heart disease was complicated by preterm labour whilst 0.8% by postpartum haemorrhage. There were no complications arising from anaesthesia, cardiogenic shock as well as pulmonary and thromboembolisms.
Heart disease accounted for 0.35% of all caesarean sections and 0.77% of instrumental delivery.

Table 1: Prevalence of Heart Disease

Participating Hospitals	Total Delivery	Heart Disease	%
Hospital Tuanku Fauziah, Perlis	8073	53	0.66
Hospital Sultanah Bahiyah, Kedah	20,921	225	1.08
Hospital Pulau Pinang	6,429	28	0.44
Hospital Raja Permaisuri Bainun, Perak	10,923	57	0.52
Hospital Tengku Ampuan Rahimah, Selangor	24,689	176	0.71
Hospital Kuala Lumpur	23,863	167	0.70
Hospital Tuanku Jaafar, Seremban	11,159	42	0.38
Hospital Melaka	21,816	69	0.32
Hospital Sultanah Aminah, Johor	25,107	233	0.93
Hospital Tengku Ampuan Afzan, Pahang	18,254	104	0.57
Hospital Sultanah Nur Zahirah, Terengganu	25,126	291	1.16
Hospital Raja Perempuan Zainab II, Kelantan	24,316	98	0.40
Hospital Umum Sarawak	11,463	61	0.53
Hospital Likas, Sabah	28,820	32	0.11
Total	**260,959**	**1,636**	**0.63**

Table 2: Type of Heart Disease by State

		Heart Disease					
Participating Hospital	Total Deliveries	Acquired	%	Congenital	%	IHD	%
Hospital Sultanah Aminah, Johor	25107	81	0.32	41	0.16	6	0.02
Hospital Sultanah Bahiyah, Kedah	20921	38	0.18	34	0.16	12	0.06
Hospital Raja Perempuan Zainab II, Kelantan	24316	16	0.07	15	0.06	12	0.05
Hospital Melaka	21816	16	0.07	27	0.12	4	0.02
Hospital Tuanku Jaafar, Seremban	11159	8	0.07	7	0.06	1	0.01
Hospital Tengku Ampuan Afzan, Pahang	18254	14	0.08	10	0.05	4	0.02
Hospital Raja Permaisuri Bainun, Perak	10923	7	0.06	13	0.12	2	0.02
Hospital Tuanku Fauziah, Perlis	8073	17	0.21	14	0.17	5	0.06
Hospital Pulau Pinang	6429	4	0.06	10	0.16	4	0.06
Hospital Likas, Sabah	28820	4	0.01	10	0.03	2	0.01
Hospital Umum Sarawak	11463	6	0.05	24	0.21	4	0.03
Hospital Tengku Ampuan Rahimah, Selangor	24689	13	0.05	18	0.07	5	0.02
Hospital Sultanah Nur Zahirah, Terengganu	25126	76	0.30	46	0.18	6	0.02
Hospital Kuala Lumpur	23863	44	0.18	46	0.19	10	0.04

Table 3: Prevalence by Ethnicity

Ethnicity	Total no of deliveries	Heart Disease	%
Malay	180071	1296	0.5
Chinese	16123	98	0.04
Indian	12684	72	0.03
Kadazan/Dusun	7687	16	0.01
Murut	607	2	0.001
Bajau	6075	7	0.003
Melanau	161	0	0
Iban	2934	22	0.008
Bidayuh	1950	15	0.006
Orang Asli (Peninsular Malaysia)	1686	17	0.0065
Other indigenous group in Sabah & Sarawak	5035	13	0.005
Other	2685	11	0.004
Foreigners	22052	61	0.023
Unknown	668	1	0.0004
Not Available	348	1	0.0004
Missing	826	4	0.002
Total	260959	1636	0.63

Graph 1: Etiology of Heart Disease

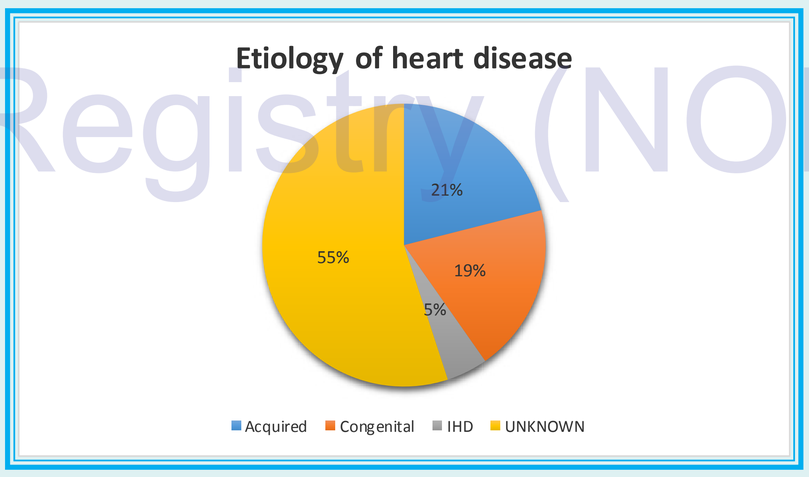


Table 4: Classification of Heart Disease

	NYHA 1	NYHA II	NYHA III	NYHA IV	NOT AVAILABLE	MISSING	TOTAL
Acquired	245	46	9	3	41	0	344
Congenital	165	58	11	0	81	0	315
IHD	40	14	4	1	18	0	77
Unknown	243	42	1	1	83	0	370
Not Available	192	34	4	0	237	0	467
Missing	12	1	0	0	9	41	63
Total	897	195	29	5	469	41	1636

Table 5: Heart disease in relation to parity

Parity	Total Deliveries	Acquired		Congenital		IHD		Total
		n	%	n	%	n	%	%
1	89,694	79	0.08	114	0.12	16	0.02	0.2
2-5	156,399	231	0.14	189	0.12	52	0.03	0.3
≥ 6	14,566	33	0.2	12	0.08	9	0.06	0.3

Table 6 : Mode deliveries

Mode of delivery	Total deliveries	Acquired	%	Congenital	%	IHD	%	Mode of delivery %
Vaginal	183,683	215	29.2	175	23.8	41	5.6	0.23
Instrumental	9,559	34	4.6	35	4.8	5	0.7	0.77
Caesarean section	63,158	92	12.5	97	13.2	29	3.9	0.35

CONCLUSIONS

Mortality from heart disease is a sentinel event in the National Indicator Approach. Commendably there were no reported mortalities from heart disease in this study. Combined clinics which were recommended since 1994 following the Malaysian Confidential Enquiry into Maternal Deaths has probably reduced the mortality in this group of women. Women with preexisting heart disease in the reproductive age group should have access to preconception counselling clinics for assessment and risk stratification. Contraceptive advice for these women is an important and integral part of counselling to reduce mortality and morbidity.

REFERENCES:

1. A clinical approach to heart disease in pregnancy: "The Obstetrician & Gynaecologist, July 2002: Part 1; Vol. 4 No. 3
2. De Swiet M. Heart disease in pregnancy. In. De Swiet M, editor, Medical Disorders in Obstetrics practice, 3rd. ed., Oxford Blackwell Scientific Publications; 1995
3. C Nelson-Piercy. Acute coronary syndrome in pregnancy: Time to act: heart.bmj.com; Vol 98, issue 10, July 2012