SICK SINUS SYNDROME IN MALAYSIANS

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SUMMARY

Forty nine patients with sick sinus syndrome seen at the University Hospital, Kuala Lumpur are reviewed. The ages of patients ranged from 17 to 85 years. There were 21 males and 28 females. The diagnostic criteria were sinus bradycardia in 8 patients (Group I), sinus arrest or sinoatrial block in 24 patients. (Group II), and bradycardia - tachycardia syndrome in 17 patiens. (Group III).

The aetiology was unknown in the majority of patients. Ischaemic heart disease was the commonest known aetiological factor. Patients with symptomatic sinus bradycardia and sinus arrest were initially treated with oral isoprenaline, and if this failed, they were paced. Temporary transvenous pacing was necessary in 27 patients and subsequent permanent pacing performed on 23 patients.

INTRODUCTION

The sick sinus syndrome is a descriptive term coined by Lown[1] and popularised by Ferrer [2] referring to a group of clinical signs, symptoms and electrocardiographic criteria defining sinus node dysfunction. The syndrome is characterised by syncope or other manifestations of cerebral dysfunction in association with sinus bradycardia, sinus arrest, sinoatrial block, alternating brady-arrhythmias and tachyarrhythythmias.

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MATERIAL AND METHOD

Over a period of 9 years from 1971 to 1979, all patients with suspected sick sinus syndrome were admitted to the coronary care unit, University Hospital, Kuala Lumpur for continuous monitoring of the arrhythmia.

Patients with drug induced sinoatrial node dysfunction e.g. digitalis, quinidine, procainamide, beta blockers and verapamil were excluded. [3,4,5,6,7,8] Other conditions excluded were hypothyroidism, hyperkalaemia and acute myocardial infarct.

The patients were divided into 3 groups after Rubenstein's [9] classification:

Group I — persistent and otherwise unexplained extreme sinus bradycardia at a heart rate of less than 50 beats per minute. Patients with sinus bradycardia were given 1 to 2 mg. intravenous atropine sulphate. If the heart rate fails to rise above 90 beats per minute, these patients are classified under group I.

Group II — presence of at least one documented episode of sinus arrest or sino atrial block, with A-V junctional or ventricular escape beats.

Group III — patients with bradycardia mechanisms of either group I or II and presence of at least one documented episode of a supraventricular tachycardia, either paroxysmal atrial tachycardia, atrial flutter or atrial fibrillation.

RESULTS

Fifty patients were reviewed. There were 21 male (42 percent) and 28 female (58 percent) patients;

TABLE I
CLINICAL PRESENTATION IN SICK SINUS SYNDROME

CLINICAL FEATURES	NO. OF PATIENTS
Giddiness	42
Syncope	23
Palpitation	15
Chest Pain	4
Cerebrovascular Accident	2
Seizures	1
Cardiac Failure	1
Upper respiratory tract infection	2

the male : female ratio being 1 : 1.38. There were 28 Chinese, 12 Malay and 9 Indian patients. The ages of these patients varied between 17 to 85 years, with a mean age of 47 years.

There were 8 patients (16 percent) with sinus bradycardia (Group I), 24 patients (50 percent) with sinus arrest or sinoatrial block (Group II), and 17 patients (34 percent) with bracycardia - tachycardia syndrome (Group III).

The clinical presentation of the patients is shown in Table I. The majority of patients presented with giddiness, syncope and palpitation, the latter being common in patients with bradycardia - tachycardia syndrome. Two patients were found to have cerebrovascular accident. Only one patient had seizures while another had congestive cardiac failure.

The aetiology was unknown in the majority of patients as shown in Table II. In those where the aetiology could be determined, ischaemic heart disease was the commonest cause. Of the 12 patients with ischaemic heart disease, 7 had angina pectoris and 5 had old myocardial infarct. The uncommon aetiological factors were acute nonspecific myocarditis, rheumatoid arthritis, and

TABLE II
AETIOLOGICAL FACTORS IN SICK SINUS SYNDROME

AETIOLOGICAL FACTORS	NO. OF PATIENTS
Idiopathic	27
Ischaemic Heart Disease	12
Hypertension	3
Congenital Heart Disease	2
Acute Nonspecific Myocarditis	2
Rheumatoid Arthritis	1
Post-Diphteria	1

TABLE III
ARRHYTHMIAS IN 49 PATIENTS

BRADYARRHYTHMIA	NO. OF PATIENTS
Sinus Bradycardia	46
Sinus Arrest	39
Sino-Atrial Block	3
Nodal Bradycardia	11
Temporary Asystole Following Tachycardia	1
TACHYARRHYTHMIA	**NO. OF PATIENTS**
Supraventricular Tachycardia	10
Atrial Flutter and/or Fibrillation	8
Ventricular Tachycardia	1

congenital heart disease.

Table III illustrates the spectrum of arrhythmia. The majority of patients had sinus bradycardia and sinus arrest. Conduction disturbances were seen in 10 patients (20 percent) of which 5 patients had first degree heart block.

Symptomatic sinus bradycardia and sinus arrest were initially treated with long acting oral isoprenaline (Seventrine), and if this failed, they were paced. Temporary transvenous pacing was necessary in 27 patients and subsequent permanent pacing was performed on 23 patients. Patients exhibiting the bradycardia tachycardia syndrome had permanent pacing and digoxin and/or propanolol to control the tachyarrhythmias.

DISCUSSION

The age of onset of the disorder is seen mainly in two age groups. Twenty patients are in the 20 - 40 years age group while 17 patients are noted in the 50-70 years age group. Rubenstein demonstrated a comparable distribution in his study. The mean age in our patients is 47 years which is much lower than the mean age of over 60 years reported in several surveys. [12,14] In contrast, all the patients reported by Ikeme [15] are below 35 years.

Giddiness, syncope and palpitation are common presenting symptoms in our patients as in most other reviews. [9,14,16] Palpitation is particularly common in patients with bracycardia - tachycardia syndrome. [9,17] Fairfax [18] demonstrated that 16 percent of patients with chronic sinoatrial disorder had cerebral embolism as opposed to 1.3 percent in a control group. Patients with bradycardia - tachycardia syndrome above 50 years old were

TABLE IV
CONDUCTION DISORDERS IN SICK SINUS SYNDROME

CONDUCTION DISORDERS	NO. OF PATIENTS
First Degree AV Block	5
Right bundle branch block	2
Left anterior hemiblock	1
Left bundle branch block	1
Interventricular conduction defect	1

particularly prone to cerebral embolism. [9,12] Only two of our patients (4 percent) had cerebrovascular accident. Nevertheless, both of them had bradycardia - tachycardia syndrome and were above the age of 50.

Ischaemic heart disease (26 percent) was the commonest known aetiological factor in our patients. A high incidence of coronary artery disease was reported in other studies. [9,14] Two of our patients with congenitial heart disease, demonstrated sinoatrial dysfunction preoperatively. One patient had an atrial septal defect, secundum type while the other had Fallot's tetralogy. In a review of sick sinus syndrome in children, Raford [19] reported 2 children with pre-operative sick sinus syndrome. Rasmussen [20] had emphasised a high incidence of past history of diptheria in his survey.

Conduction disturbances as shown in Table IV, were seen in 10 of our patients (20 percent). In contrast a much higher incidence had been reported in the literature. [12,14,21,22]

Clinical experience revealed that except in mild cases, drug therapy was unable to maintain an increased heart rate to prevent disabling clinical symptoms. [9,23,24] Cardiac pacing, however, had been conclusively shown to decrease disabling symptoms. [16,25,26] The combination of implanted pacemaker and appropriate antiarrhythymic agents in bradycardia - tachycardia syndrome had provided an almost complete control of severe arrhythmia. [17,27,28]

In conclusion, the decision for pacemaker treatment in sick sinus syndrome is largely determined by the disabling symptom uncontrolled by medical therapy.

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