



CHIRURGIE CARDIAQUE / CARDIAC SURGERY

THE DIAGNOSTIC SPECTRUM OF CARDIO-THORACIC DISEASES IN ACCRA

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Summary

Background. This study was designed to ascertain the spectrum of diagnoses of cardiothoracic diseases in this Centre. It is currently the only Cardiothoracic Centre in the country. All new cases presenting at the surgical outpatients' department (OPD) in one year were analysed.

Aim. To know the actual numbers, the distribution pattern of the diseases and to obtain data for future comparative studies.

Patients and Methods. Retrospective analysis of all new patients seen from January to December, 2008 was done. The source of data was the OPD records and the patients' case notes.

Results. Three hundred and ninety-five new cases were seen. They were congenital heart disease 146 (37.0%), thoracic diseases 112 (28.4%), adult cardiology cases 62 (16.0%), acquired heart diseases 38 (9.6%), miscellaneous cases 31 (7.8%) and vascular diseases 6 (1.5%). The four commonest cases of congenital heart diseases were ventricular septal defect (41.8%), Tetralogy of Fallot (19.2%), patent ductus arteriosus (12.3%), atrial septal defect (12.3%), and pulmonary stenosis (3.4%). The four commonest cases of acquired heart diseases were mitral regurgitation (44.7%), complete heart block (21.1%), aortic and mitral regurgitation (10.6%), and aortic regurgitation (7.9%). Carcinoma of the oesophagus was the commonest (27.1%) among the thoracic cases, followed by bronchogenic carcinoma (24.3%), anterior mediastinal masses (12.9%), and corrosive oesophageal stricture (11.4%).

Conclusion. Among the cardiothoracic diseases in Accra, the commonest congenital heart disease was ventricular septal defect, the commonest acquired heart disease was mitral regurgitation and the commonest thoracic disease was carcinoma of the oesophagus.

Keywords: Congenital heart disease, acquired heart disease, thoracic disease

Résumé

Contexte : Cette étude a été conçue pour vérifier le spectre des diagnostics des maladies cardio-thoraciques dans le seul Centre Cardio-thoracique du pays. Tous les nouveaux cas présentés au département chirurgical des maladies cardio-thoraciques (OPD) ont été analysés.

But : Savoir les nombres réels, le modèle de distribution des maladies cardio-thoraciques et obtenir des données pour des études comparatives futures.

Patients et Méthodes : L'analyse rétrospective de tous les nouveaux patients vus de janvier à décembre 2008 a été réalisée. La source de données était les rapports médicaux d'OPD et le dossier des patients.

Résultats : Trois cent quatre-vingt-quinze nouveaux cas ont été colligés. Il s'agissait de cardiopathies congénitales 146 (37.0 %), des maladies thoraciques 112 (28.4 %), des cardiopathies adultes 62 (16.0 %), des cardiopathies acquises 38 (9.6 %), des cardiopathies diverses 31 (7.8 %) et des maladies vasculaires 6 (1.5 %). Les quatre principales cardiopathies congénitales étaient la communication inter-ventriculaire (41.8 %), la Tétralogie de Fallot (19.2 %), la persistance du canal artériel (12.3 %), la communication inter-auriculaire (12.3 %) et la sténose pulmonaire (3.4 %). Les quatre principales cardiopathies acquises étaient l'insuffisance mitrale (44.7 %), le bloc auriculo-ventriculaire complet (21.1 %), l'insuffisance mitrale-aortique (10.6 %) et l'insuffisance aortique (7.9 %). Le carcinome de l'œsophage était le plus fréquent (27.1%) parmi les maladies thoraciques, suivi des carcinomes bronchogénique (24.3 %), des masses médiastinales antérieures (12.9 %) et de la sténose œsophagienne corrosive (11.4 %).

Conclusion : Parmi les maladies cardio-thoraciques à Accra, la cardiopathie congénitale la plus fréquente était la communication inter – ventriculaire. La cardiopathie acquise la plus fréquente était l'insuffisance mitrale, la maladie thoracique la plus fréquente était le carcinome de l'œsophage.

Mots-clés : Cardiopathie congénitale, cardiopathie acquise, maladies thoraciques

Introduction

Ghana is a relatively small country with a population of about 24 million people. It has only one Cardiothoracic Centre, which has been functioning steadily for over 2 decades now. It is therefore the sole referral Centre for cardiothoracic diseases in the country. We analysed the number and spectrum of diagnoses for all the new cases at the cardiothoracic outpatient's department (OPD) in one year.

Since such data is not readily available, it is hoped that this analysis will provide the information on the number of cases seen, the distribution pattern and give an idea of the incidence of some of these diseases in the country. The data will also be a reference point for future studies.

Patients and Methods

All patients seen at the surgical OPD of the National Cardiothoracic Centre from the 1st of January, 2008 to the 31st of December, 2008 were entered into a retrospective study design. The source of the data was the OPD records and the patients' case notes.

Results

Three hundred and ninety-five new cases were seen in the year. Most of them were congenital heart disease (CHD) 146 (37.0%), followed by thoracic diseases 112 (28.4%), adult cardiology cases 62 (16.0%), acquired heart diseases (AHD) 38 (9.6%), miscellaneous cases 31 (7.8%) and vascular diseases 6 (1.5%).

1. Congenital Heart Diseases (CHD)

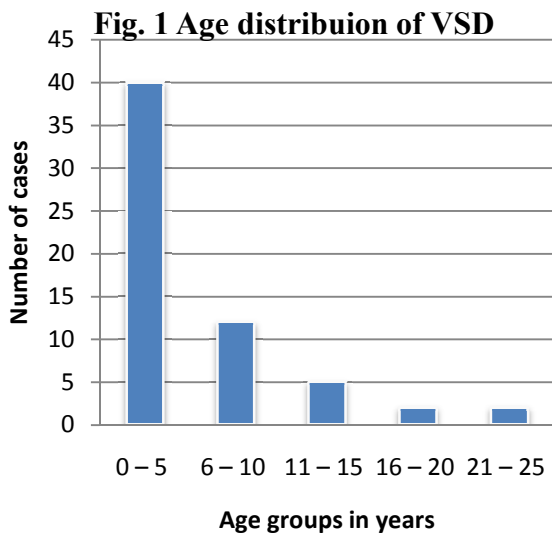
Among the CHDs (Table 1), ventricular septal defect (VSD) was the commonest; 61 (41.8%), followed by Tetralogy of Fallot (TOF); 28 (19.2%). Transposition of the Great Arteries (TGA) was the least; 1 (0.7%). The overall male: female ratio was 1: 1.1. However, there were more males with VSD (1.2: 1) and TOF (1.5: 1) and more females with patent ductus arteriosus (PDA) (1: 1.3) and atrial septal defect (ASD) (1: 8).

Table 1: Congenital Heart Diseases

Diagnosis	Number (Percentage)
Ventricular septal defect	61 (41.8%)
Tetralogy of Fallot	28 (19.2%)
Patent ductus arteriosus	18 (12.3%)
Atrial septal defect	18 (12.3%)
Pulmonary stenosis	5 (3.4%)
Atrioventricular septal defect	5 (3.4%)
Truncus Ateriosus	5 (3.4%)
Double outlet right ventricle	3 (2.1%)
Tricuspid Atresia	2 (1.4%)
Transposition of the great arteries	1 (0.7%)
Total	146 (100%)

Ventricular Septal Defect (VSD) (figure 1)

There were 33 males and 28 females. The age range was 6 weeks – 25 years, with a mean age of 4.7 years, and a modal age group of 0 - 5 years (figure 1).



Tetralogy of Fallot (TOF)

There were 17 males and 11 females. The age distribution was: 0 – 5 years; 23 (82.1%), 6 – 10 years; 3 (10.7%), 11 – 15 years; 1 (3.6%), and 16 – 20 years; 1 (3.6%). The age range was 5 months – 18 years, with a mean of 3.8 years

Patent Ductus Arteriosus (PDA)

There were 8 males and 10 females. The age distribution was: 0 – 5 years; 16 (88.9%), 6 – 10 years; 0 (0%), 11 – 15 years; 0 (0%), 16 – 20 years; 1 (5.6%) and 21 – 25 years; 1 (5.6%). The age range was 2 months – 21 years, with a mean of 3.8 years.

Atrial Septal Defect (ASD)

There were 2 males and 16 females. The age distribution was: 0 – 10 years; 11 (61.1%), 11 – 20 years; 2 (11.1%), 21 – 30 years; 3 (16.7%), 31 – 40 years; 0 (0%), 41 – 50 years; 1 (5.6%), and 51 – 60 years; 1 (5.6%). The age range was 3 weeks – 58 years, with a mean of 13.5 years.

Other congenital heart diseases

Pulmonary Stenosis (PS) : there were 4 females and a male, with an age range of 2 months – 12 years and a mean age of 4.8 years.

Truncus Arteriosus (TAT) : there were 2 males and 3 females, with an age range of 3 months – 2 years and a mean age of 1.1 years.

Atrio-Ventricular Septal Defect (AVSD) : there were 5 males, aged between 5 weeks and 1.5 years, with a mean age of 0.7 years.

Double Outlet Right Ventricle (DORV) : there were 3 females aged between 1 and 2.5 years.

Tricuspid Atresia (TA) : there were 2 males, aged 3 and 5 months.

Transposition of Great Arteries (TGA): this was a 2-year old male.

2. Acquired Heart Diseases (AHD)

Among the AHDs (Table 2), mitral regurgitation (MR) was the commonest; 17 (44.7%) and coronary artery disease (CAD) was the least; 1 (2.6%).

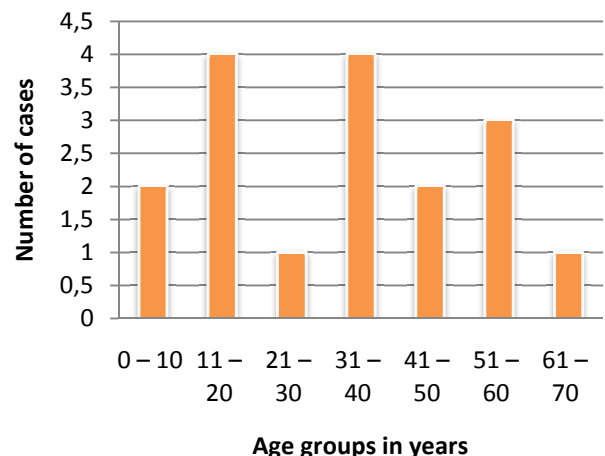
Table 2 : Acquired Heart Diseases

Diagnosis	Number (Percentage)
Mitral Regurgitation	17 (44.7%)
Complete Heart Block	8 (21.1%)
Aortic & Mitral Regurgitation	4 (10.6%)
Aortic Regurgitation	3 (7.9%)
Mitral Stenosis	2 (5.3%)
Aortic Stenosis	2 (5.3%)
Constrictive Pericarditis	1 (2.6%)
Coronary Artery Disease	1 (2.6%)
Total	38 (100%)

Mitral Regurgitation (MR)

There were 5 males and 12 females, with a mean age of 33.5 years, a range of 8 – 62 years and two modal age groups of 11 – 20 years and 31 – 40 years (figure 2).

Fig. 2 Age distribution of mitral regurgitation



years and a female aged 40 years.

Aortic Regurgitation (AR) : they were 3 males aged 41, 60 and 62 years.

Aortic Stenosis (AS) : these were a male aged 75 years and a female aged 73 years.

AR and MR : these were 2 males aged 21 and 24 years and 2 females aged 40 and 80 years.

Complete Heart Block (CHB) : these were 4 males and 4 females, with a mean age of 59.6 years and a range of 40 – 74 years.

Constrictive Pericarditis (CP) : this was a 63-year old male.

Coronary Artery Disease (CAD) : this was a 66-year old male with triple vessel disease.

3. Vascular Diseases

Abdominal Aortic Aneurysms : these were a male aged 62 years and 2 females aged 70 and 92 years.

Ascending Aortic Aneurysm : this was a 66-year old male.

Aortic Dissection (type A) : this was in a 43-year old male

4. Thoracic Diseases

The 112 thoracic cases have been divided into group 1 (70 cases) and group 2 (42 cases). The group 1 diseases are those that are finally managed only in this Centre within the country. (Table 3). The commonest case in group 1 was carcinoma of the oesophagus; 19 (27.1%), followed by bronchogenic carcinoma; 17 (24.3%). The group 2 diseases are those that are also managed in the other departments in the Korle-Bu Teaching Hospital and also in other hospitals in the country.

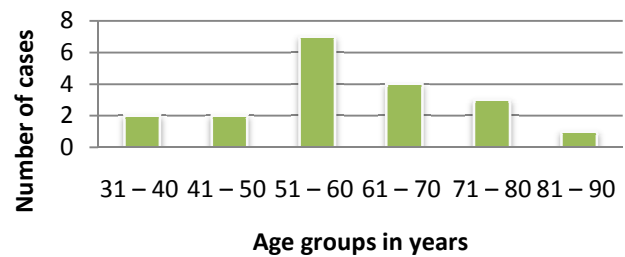
Table 3: Thoracic Diseases

Diagnosis	Number / Percentage
Carcinoma of the Oesophagus	19 (27.1%)
Bronchogenic carcinoma	17 (24.3%)
Anterior mediastinal masses	9 (12.9%)
Corrosive oesophageal stricture	8 (11.4%)
Achalasia of the cardia	6 (8.6%)
Aspergilloma of the Lung	3 (4.3%)
Chest wall tumours	3 (4.3%)
Oesophageal diverticulum	1 (1.4%)
Bullous lung disease	1 (1.4%)
Castleman's disease	1 (1.4%)
Enteric cyst in the right lung	1 (1.4%)
Eventration of the diaphragm	1 (1.4%)
Total	70 (100%)

Carcinoma of the oesophagus

There were 16 males and 3 females (sex ratio of 5.3: 1), with an age range of 33 – 86 years, a mean age of 59.8 years and a modal age group of 51 – 60 years (figure 3)

Fig. 3 Age distribution of carcinoma of the oesophagus



Bronchogenic carcinoma

There were 10 males and 7 females. Ten of the lesions were on the right and 7 on the left. The age distribution was : 41 – 50 years; 3 (17.6%), 51 – 60 years; 5 (29.4%), 61 – 70 years; 4 (23.5%), 71 – 80 years ; 3 (17.6%), 81 – 90 years; 1 (5.9%) and 91 – 100 years; 1 (5.9%). The mean age was 64.7 years, with a range of 49 – 91 years.

Other group 1 thoracic diseases

Corrosive Oesophageal Stricture: these were all males, with a mean age of 26.1 years and a range of 1.5 – 52 years

Anterior Mediastinal Masses: there were 7 males and 2 females. Six of them were goitres and 3 were Non Hodgkin's Lymphoma. The mean age was 49.2 years, with a range of 15 – 78 years.

Achalasia of the Cardia: there were 4 males and 2 females, with a mean age of 35.5 years, and a range of 18 – 56 years.

Aspergilloma: of the Lung there were 2 males and a female; aged 34, 45 and 66 years respectively. Two of the lesions were on the right and 1 on the left.

The diaphragmatic eventration was in a 70-year old female, and the oesophageal diverticulum was in a 76-year old male.

The three (3) chest wall tumours were in a male, 49 years and 2 females 66 and 73 years old.

Group 2 thoracic diseases

These were pleural effusion: 12 (28.6%), chronic empyema thoracis: 11 (26.2%), pulmonary tuberculosis: 9 (21.4%), chest injury: 6 (14.3%), inhaled foreign body: 2 (4.8%), swallowed foreign body: 1 (2.4%) and pulmonary metastasis: 1 (2.4%).

5. Adult Cardiology and Miscellaneous Cases

The adult cardiology cases that were seen at the surgical clinic were hypertensive heart disease:

44 (71.0%), congestive cardiac failure: 5 (8.1%), dilated cardiomyopathy: 5 (8.1%), pericardial effusion: 5 (8.1%) and ischaemic heart disease: 3 (4.8%).

The miscellaneous cases were peptic ulcer disease: 9 (23.7%), gastroesophageal reflux disease: 3 (7.9%), anxiety disorder: 2 (5.3%), malaria: 2 (5.3%), inguinal hernia: 1 (2.6%), lumbar spondylosis: 1 (2.6%), cerebro-vascular accident: 1 (2.6%), deep vein thrombosis: 1 (2.6%), drug reaction: 1 (2.6%), fistula-in-anus: 1 (2.6%), chronic obstructive airway disease: 1 (2.6%), and undiagnosed: 8 (21.1%).

Discussion

Congenital Heart Diseases

The four (4) commonest lesions in the study were VSD (41.8%), TOF (19.2%), PDA (12.3%) and ASD (12.3%). Similarly, most studies found VSD as the commonest lesion in the distribution pattern of congenital heart diseases,^{1, 2, 3, 4, 5} followed by PDA^{1, 2} or followed by TOF,^{3,4} or followed by ASD⁵. The percentage of VSD varies from 30 – 62.5%.^{1, 4, 5}

The overall sex incidence for the congenital heart disease was slightly more in females, with the male: female ratio of 1: 1.1. Jaiyesimi¹ found it even. However, there were more males with VSD (1.2: 1) and TOF (1.5: 1) and more females with PDA (1: 1.3) and ASD (1: 8). There seems to be an over representation of ASDs in females in our study since what is quoted often is about 1: 2.⁶

The TOFs, PDAs and VSDs presented earlier with mean ages of 3.8 years, 3.8 years and 4.7 years respectively, compared with the ASDs that presented at a mean age of 13.5 years. This is because the pathophysiology of the first three lesions provoke an earlier symptomatology than ASDs, which can be tolerated a little more longer before presenting.

Acquired Heart Diseases

As expected, due to the socio-economic profile of the country, rheumatic heart disease (RHD) was the commonest diagnosis among the AHDs. And MR was the commonest; 44.7% (Table 2). Sani found 38.0% MR⁷ and Tantchou found 59.7% MR⁴. The MR male: female ratio was 1: 2.4, with a mean age of 33.5 years and a bi-modal age distribution of 11 – 20 years and 31 – 40 years. Ozer⁸ had a mean age of 39.7 years for males and 41.3 years for females.

The overall sex incidence of the RHD in this study was 1: 1.3, confirming with Tantchou⁴ 1: 1.3 and Sani⁷ 1:1.7 that RHD is commoner in females.

There were 8 cases of CHB. This value is not representative. It is an understatement because CHB and the other conditions needing permanent pacemaker implantation often come as emergencies and therefore are sent to the theatre without passing through the OPD. Therefore some of them are not captured in this OPD data.

Only one case of CAD (triple vessel disease) was recorded. The incidence of coronary artery disease in this country is relatively low, though it is gradually rising.

Thoracic Diseases

Carcinoma of the oesophagus was the commonest of the thoracic diseases, forming 27.1% (Table 3). And the male: female ratio was 5.3: 1. This is the usual pattern, where it is commoner in males⁹ with a range of 1.9: 1 to 13: 1.^{10,11,12} The mean age was 59.8 years with a modal age group of 51 – 60 years. This age group is also similar to Kachala's finding of 45 – 64 years⁹ and Badoe et al's finding of 40 – 60 years¹². Dia et al had a mean age of 49 years¹⁰.

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