Original Article

Management of Heart Failure in the Yaounde Military Hospital - Cameroon

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Key words: Heart failure; alcohol. Dilated cardiomyopathy

ABSTRACT

Aim: To describe clinical features and management of patients with heart failure at the Yaounde Military Hospital (YMH).

Methods: Retrospective study carried out at cardiology unit of YMH from January 2014 to December 2014. Clinical features and mode of treatment of patients were recorded and analyzed.

Results: 86 patients were studied comprising 63 men (73.2%) and 23 women (26.7%). The mean age was 64.8 ±13. All the patients presented with NYHA functional class III or IV. Alcohol was the most common etiological factor of HF (66.7%), followed by hypertension (37.5%). 20.9 % of the patients in heart failure were smokers. Global heart failure was the common clinical presentation (60.9%). Left bundle branch was present in 23.8% of electrocardiograms while 12.2% of the patients were in atrial fibrillation. Dilated cardiomyopathy was the most common lesion (80%) found at echocardiography. 66.6% of patients presented with severe left ventricular (LV) systolic dysfunction. The mean ejection fraction (EF) of male subjects was 30.1%, while it was 38.7% for women (p=0.044). Current recommended pharmacology therapies were used in only 48% of patients.

Conclusion: Cameroonian patients in heart failure usually present in the sixth decade and the severe heart failure is the rule. Alcohol seems to be the major etiological factor. Less than half the patients take the recommended treatment of HF.

INTRODUCTION:

Heart failure (HF) has since few years emerged as a major public health problem in developed countries. Although communicable diseases remain the major causes of death in Africa, HF is emerging as a dominant form of cardiovascular disease in this area of the world (1,2). The most common cause of HF in developed countries is coronary artery disease[3]. Rheumatic heart disease, hypertension and cardiomyopathy are the main contributors of HF in Africa accounting for 90% of cases (2). HF has become a public health problem especially in the elderly population. Data show that prevalence of HF in developed countries is estimated at 2% (5). Few data on prevalence of HF are available in sub Saharan Africa (6). The therapeutic approach has undergone considerable change. The guidelines recommend that all patient with HF should receive ACE I which improve symptoms and reduce hospitalizations. Diuretics should be given if fluid retention. Beta-blockers are of proven benefits in HF patients with decrease of mortality and morbidity (4). This study was designed to determine epidemiology, clinical aspects and treatment of HF patients in the cardiology unit, Yaounde military hospital (YMH), Cameroon.

MATERIALS AND METHODS

This was a retrospective study carried out at the cardiology unit of Yaounde military hospital, Cameroon, from January 2014 to December 2014. The hospital's ethical committee approved the study.

Files of 86 adult patients admitted for HF were studied. The demographic, clinical, electrocardiographic and echocardiographic characteristics of the patients were obtained. HF was confirmed using the modified Framingham criteria for the diagnosis of HF (7). The major criteria included were: dyspnea raised jugular venous pressure, basal crepitation, s3 gallop. The minor criteria included were tachycardia, orthopnea, nocturnal cough and hepatomegaly. HF was diagnosed if the patient had two major and one minor or one major and two minor criteria. Echocardiography was performed to

all the HF patients. The data included M-mode, 2 dimensional, Doppler and color flow imaging. Left ventricular systolic dysfunction was defined as left ventricular ejection fraction (EF) < 50%.

Statistical analysis

Data were analyzed using the epi info version 3.5.1. Baseline variables were expressed as mean ± SD. Qualitative variables were expressed as proportions. T student and Khi 2 test were used for comparison of variables.

RESULTS

86 patients were recruited, 63 males (73.2%) and 23 females (26.7%). Mean age was 64.8 ± 13. Minimum age of 18 years and maximum of 85 years. Figure 1 shows age distribution.
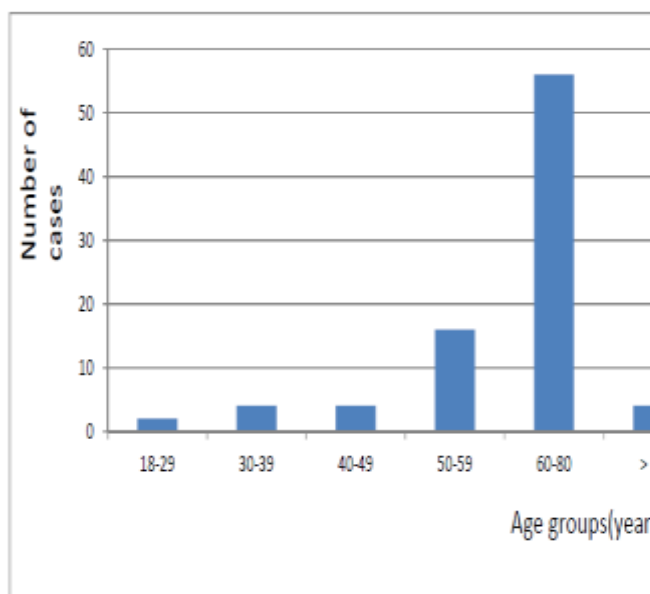

Figure 1: Age distribution of heart failure patients

The majority of patients (95.3%) presented with dyspnea NYHA functional class II or III.

The main cardiovascular risk factors were hypertension (47.6%) with males were more affected than female (81.3% vs 18%, P=0.32) with no significant difference, diabetes (2.3%). Tobacco (20.9%) Alcohol was present within 52 patients (60.5%) in favor of male patients (76% vs 24 %, p=0.70) with no significant difference.

Electrocardiographic findings showed: left bundle branch (23.8%), ischemia (21.2%), atrial fibrillation (12.2%), and ventricular extrasystoles (11.9%).

Data from echocardiography showed that the majority of patients (83.3%) had dilated cardiomyopathy, 8 (9.5%) had valvulopathy with four (4.8%) having mitral regurgitation and two patients (2.4%) having aortic stenosis. Mean left systolic dysfunction was 32.4% of ejection fraction (EF). EF was lower in men group than female group (mean EF, 30.1 % vs 38.7 % p=0.044) the difference reach statistical significance. Table two shows electrocardiography and echocardiography findings.

Table 2: Electrocardiography and echocardiography findings of heart failure patients

Data	N (%)
ECG	
LBB	23.8%
ESV	11.9%
AF	12.2%
Ischemia	21.2%
Echocardiography	
Dilated cardiomyopathy	83.3%
Valvulopathy	4.8%

Table 3 shows the distribution of pharmacological treatment of HF patients. Treatments given to HF patients were as follow: diuretics (100%), angiotensine-conversing-enzyme (ACE I) inhibitors (95.2%), the main ACE was perindopril, angiotensine II-receptor blockers (ARBs) were never used. Beta-blockers (50%), the main beta-blocker was bisoproplol, aldosterone antagonists (50%), and spironolactone especially. 42 patients (48.8%) received all the drugs recommended by the guidelines (4).

Table 3: Pharmacological treatment distribution of heart failure patients

Treatment	N (%)
Diuretics	86 (100)
ACE inhibitor	80 (95.2)
Beta blocker	43 (50)
Spironolactone	43 (50)
ARB's	0 (0)

DISCUSSION

The mean age of our HF patients (64.8 ± 13 years) is lower than the 77.3 years reported by Mosterd A et al in the Rotterdam study (8). Owusu found a mean age of 53 years in Ghana lower than in our study (9). HF occurs early in life in Africa than in developed countries. This could be explained by the short life expectancy in Africa due to infectious diseases for the majority of cases. Male patients are more affected than females in this study. Those findings are in accordance with the results found in developed world where it is proved that incidence of HF is positively and significantly associated with male sex (10).

Alcohol with 60.5% of cases is the major etiological of HF in this study. Arthur L. Klatsky et al also found that alcohol consumption is associated with increased risk of cardiomyopathy (11). That could be explained by alcohol toxicity and it's metabolites on the heart. Hypertension is also a frequent risk factor to have HF in this study. This study reports 47.6% of HF patients having hypertension. The high prevalence of hypertension in Africa and in developed countries is known. Some studies highlight the significant association between hypertension and heart failure (12,13). Levy D et al study have reported

that risk of HF is doubled for men and women with blood pressure ≥ 160/100 mmhg compared with < 140/90 mmhg (13). In Nigeria, Isezuo found a prevalence of HF among patients with hypertension of 36% (14) while Kingue S et al in a paper published in 2005 found a prevalence of 54.5% in cameroon (15). This study is in accordance with all those findings. Diabetes is rare within HF patients of this study (2.3%). Thiam et al in Senegal found that 11.8% of HF patients had diabetes (16). In a selective group of patients with HF in Nigeria, the proportion of those with diabetes was found to be 58% (17). The most common presenting symptom is dyspnea class III with left HF as common syndrome. The low rate of diabetes within HF patients in our study could be explained by the small sample size of patients.

Electrocardiographic findings are always abnormal in this study. The common abnormalities are left bundle branch and T-wawe abnormalities. Nasrin K Khan et al in an European study reported that <2% of HF patients ECG were normal. In the same study, T-wawe abnormalities, LBBB and heart rate> 95 bpm were associated with severe left ventricular dysfunction (18). However,12-lead ECG appears to have limited value for the identification of the causes of HF. The real clinical utility of ECG in HF appears not to be for diagnosing the presence or aetilgy of HF but rather for the identification of the complications.

Dilated cardiomyopathy was the common aetiology found at echocardiography in this study. Most of the patients presented with severe systolic dysfunction. EF was lower in male patients than in female patients in this study. Dike B Ojji et al in Nigeria and Kingue S et al in Cameroon also found a low EF among HF patients in their studies (15,19).

Only half of HF patients in this study were given pharmacological treatment according to the international guidelines (22). Diuretics and ACE inhibitors were used in 100% and 95.2% of cases respectively while beta blockers and spironolactone were less prescribed (50% for both drugs). Neubauer et al in Germany found that approximately 60% of drugs were prescribed according to the guidelines (20). Kim JY et al in Korea reported that among 28000 patients with chronic heart failure, beta-blockers were prescribed to 31.5% and ACE I or ARBs were prescribed to 54.7% of the total population (21). It appears that pharmacotherapy according to international guidelines is not yet systematically prescribed in Cameroon although its positive impact on the mortality (20).

CONCLUSION

Heart failure is frequent in Cameroon. Male Patients over 60 years are affected. Alcohol appears to be a major factor in HF. Hypertension is involved as the major cardiovascular risk factor. Dilated cardiomyopathy with very low EF is the common echocardiographic diagnosis. Pharmacological treatment recommended by international guidelines is still under prescribed.

REFERENCES

1. Karen Sliwa, Albertino D, Bongani M, Mayosi MB, D Phil. Epidemiology and Etiology of Cardiomyopathy in Africa. *Circulation* 2005;112:3577-3583
2. Douglas D. Schocken, Emelia J.B, Gregg C. Fonarow, Harlan M. Krumholz et al. Prevention of heart failure. A scientific statement from the American Heart Association Councils on Epidemiology and Prevention, Clinical Cardiology, Cardiovascular Nursing, and High Blood Pressure Research; Quality of Care and Outcomes Research Interdisciplinary Working Group; and Functional Genomics and Translational Biology Interdisciplinary Working Group. *Circulation. 2008; 117: 2544-2565*
3. Ntusi NB, Mayosi BM. Epidemiology of heart failure in sub-Saharan Africa. *Exp Rev Cardiovasc Ther. 2009;7(2):169-80*
4. Task force report. Guidelines for the diagnosis and treatment of chronic heart failure. *Eur Heart Journal. 2001; (22): 1527-1560*
5. Owusu IK, Boakye YA. Prevalence and Aetiology of Heart Failure in Patients Seen at a Teaching Hospital in Ghana. *J Cardiovasc Dis Diagn 2013, 1:5*
6. Stewart S, Wilkinson D, Backer A et al. Mapping the emergence of heart disease in a black, urban population in Africa: The Heart of Soweto Study. *Int J Cardiol. 2006 Mar 22;108(1):101-8*
7. Amoah AG, Kallen C. Aetiology of heart failure as seen from a national cardiac referral centre in Africa. *Cardiology. 2000;93(1-2):11-18*

8. Mosterd A, Cost B, Hoes AW, de Bruijne MC, Deckers JW et al. The prognosis of heart failure in the general population: The Rotterdam Study. *Eur Heart J. 2001 Aug;22(15):1318-27*
9. Owusu I. Treatment of heart failure in a teaching hospital in Ghana, West Africa. *The Internet Journal of Third World Medicine. 2006 Vol 4 N° 2.*
10. HE J, Ogden LG, Bazzano LA et al. Risk factors for congestive heart failure in US men and women: NHANES I epidemiologic follow-up study. *Arch Intern Med. 2001 Apr 9;161(7):996-1002*
11. Klatsky AL, Chartier D, Udaltsova N, Gronningen N et al. Alcohol drinking and risk of hospitalization for heart failure with and without associated coronary artery disease. *Am J Cardiol. 2005 Aug 1;96(3):346-51*
12. Lloyd –Jones DM, Larson MG, Leip EP, Beiser A et al. Lifetime Risk for Developing Congestive Heart Failure. The Framingham Heart Study. *Circulation. 2002;106:3068-3072.*
13. Levy D, Larson MG, Vasan RS, Kannel WB, Ho KK. The progression from hypertension to congestive heart failure. *JAMA. 1996 May 22-29;275(20):1557-62*
14. Isezouo SA. Seasonal variation in hospitalisation for hypertension-related morbidities in Sokoto, north-western Nigeria. *Int J Circumpolar Health. 2003 Dec;62(4):397-409*
15. Kingue S, Dzudie A, Menanga A et al. A new look at adult chronic heart failure in Africa in the age of the Doppler

echocardiography: experience of the medicine department at Yaounde General Hospital. *Ann Cardiol Angeiol (Paris). 2005 Sep;54(5):276-83*

16. Thiam M. Cardiac insufficiency in the african cardiology milieu. *Bull Soc pathol Exot. 2003 Aug;96(3):217-8*

17. Ola BA, Adewuya AO, Ajayi OE, Akintomide AO et al. Relationship between depression and quality of life in Nigerian outpatients with heart failure. *J Psychosom Res. 2006 Dec;61(6):797-800*

18. Khan NK, Goode KM, Cleland JG, Rigby AS, Freemantle N et al. Prevalence of ECG abnormalities in an international survey of patients with suspected of confirmed heart failure at death or discharge. *Eur J Heart Fail. 2007 May;9(5):491-501*

19. Ojji DB, Alfa J, Ajayi SO et al. Pattern of heart failure in Abuja, Nigeria: an echocardiographic study. *Cardiovasc J Afr. 2009 Nov-Dec;20(6):349-52*

20. Neubauer S, Schilling T, Zeidler J et al. Impact of guideline adherence on mortlity in treatment of left heart failure. *Herz. 2016 Feb 16.*

21. Kim JY, Kim HJ, Jung SY, Kim KI, Song HJ et al. Utilization of evidence-based treatment in elderly patients with chronic heart failure: using Korean Health Insurance claims database. *BMC Cardiovasc Disord. 2012 Jul 31;12:60*

22. McMurray JJ, Adamopoulos S, Anker SD, Auricchio A, Bohm M, Dickstein K et al. ESC guidelines for the diagnosis and treatment of acute and chronic heart failure 2012: The Task Force for the Diagnosis and Treatment of Acute and Chronic Heart Failure 2012 of the European Society of Cardiology. Developed in collaboration with the Heart Failure Association (HFA) of the ESC. *Eur J Heart Fail. 2012 Aug;14(8):803-69*