

PATTERN OF PERICARDIAL DISEASES IN HIV-POSITIVE PATIENTS AT UNIVERSITY COLLEGE HOSPITAL, IBADAN, NIGERIA

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Rationale. Pericarditis has been reported as the most common cardiac complication of HIV disease, followed by pericardial effusion.

Methods. A retrospective review was conducted of all 68 patients treated for pericardial diseases between August 2003 and July 2008 at University College Hospital, Ibadan, Nigeria. HIV-positive patients ($N=42$) were compared with those who were HIV negative ($N=26$).

Results. More male than female patients presented with pericardial disease, and the HIV-positive patients were younger than those who were HIV negative. Pericardial effusion was the commonest mode of presentation, accounting for 20 HIV-positive patients (47.7%) and 13 HIV-negative patients (50%). Pericardiostomy was the commonest surgical intervention performed in HIV-positive patients ($N=15$), while the majority of HIV-negative patients had pericardiocentesis.

Conclusion. Pericardial effusion was the commonest cardiac presentation in HIV-positive patients in our setting. We recommend that patients with pericardial effusion be investigated for HIV infection.

Previous reports have described cardiac involvement in 28 - 73% of patients with HIV infection. This includes pericardial effusion, pulmonary hypertension and heart failure, infective endocarditis, tumours, myocarditis and left ventricular dysfunction.¹ The association between pericardial diseases and AIDS has been well documented.²

Of interest is the observation that the incidence of AIDS-related diseases found at autopsy studies is significantly higher than the incidence of abnormalities diagnosed clinically. It is therefore possible that many AIDS patients have cardiac abnormalities that are not recognised during the course of their illness.³

The number of HIV-positive patients with pericardial diseases has been reported to be increasing in Africa.⁴ Pericarditis was reported to be the most common cardiac complication of HIV infection, followed by pericardial effusion.⁵

METHODS

We reviewed the records of all patients treated for pericardial diseases between August 2003 and July 2008 at University College Hospital, Ibadan, Nigeria. Data were obtained from medical, ward and theatre records. Demographic data, causes of pericardial diseases, treatment offered and outcome were

recorded. Pericardial effusion was categorised into mild (<2 cm) and severe (>2 cm), based on echocardiographic evaluation of thickness. Comparisons were made between the HIV-positive and HIV-negative groups. The chi-square test was used to compare the two groups.

RESULTS

The total number of patients treated for pericardial diseases during the period under review was 68; 42 were HIV positive and 26 HIV negative. The mean age of the HIV-positive patients was 30 years and that of the HIV-negative patients 53 years ($p=0.05$). HIV-positive patients were three times more likely to be male and HIV-negative patients twice as likely. Diagnoses and the causations of pericardial disease in the two groups are set out in Tables I and II, respectively. Large effusions were seen in 80% of HIV-positive patients, but only 15% were categorised as large in the HIV-negative group (Table III). The treatment offered to the patients is shown in Table IV. Pericardiostomy was performed in 15 of the HIV-positive patients and 4 of the HIV-negative patients. Four of the HIV-positive patients and 1 HIV-negative patient died. Among the HIV-positive patients, 2 died after pericardiectomy, 1 following a complication of tube pericardiostomy, and 1 while being prepared for surgery because he was haemodynamically unstable.

TABLE I. DIAGNOSES IN 68 PATIENTS WITH PERICARDIAL DISEASE

Diagnosis	HIV positive	HIV negative
Pericardial effusion	20 (47.6%)	13 (50%)
Constrictive pericarditis	12 (28.6%)	7 (26.9%)
Effusive constrictive pericarditis	6 (14.3%)	2 (7.7%)
Pericarditis	4 (9.5%)	4 (15.4%)
Total	42	26

TABLE II. CAUSES OF PERICARDIAL DISEASE

Diagnosis	HIV positive	HIV negative
Tuberculosis	17 (40.5%)	10 (38.5%)
Malignant disease	7 (16.7%)	4 (15.4%)
Chronic inflammation	6 (14.3%)	10 (38.5%)
Unknown	12 (28.6%)	2 (7.7%)
Total	42	26

TABLE III. PERICARDIAL EFFUSION

	HIV positive	HIV negative
Large effusion*	16 (80%)	2 (15.4%)
Small effusion**	2 (10%)	8 (61.5%)
No report***	2 (10%)	3 (23.1%)
Total	20	13

Statistical significance was defined as $p < 0.05$.
 * $p < 0.01$.
 ** $p < 0.05$.
 *** $p < 0.10$.

TABLE IV. TREATMENT OF PERICARDIAL DISEASE

Treatment	HIV positive	HIV negative
Pericardiostomy	15 (37.5%)	6 (23.1%)
Pericardiocentesis	6 (14.3%)	8 (30.8%)
Pericardiectomy	14 (33.4%)	8 (30.8%)
Nil	7 (16.7%)	4 (15.4%)
Total	42	26

DISCUSSION

The incidence of cardiac manifestations in the course of AIDS is increasing, although these manifestations are not often diagnosed clinically. Myocarditis and pericardial diseases have been reported to be the commonest HIV-related cardiac abnormalities.⁶ The association of pericardial diseases and AIDS has been well documented.¹ Pericardial effusion was the commonest mode of presentation in our patients, which is in keeping with other studies.⁷ Our study showed that HIV-positive patients were younger than HIV-negative patients. This has also been documented by Kwan *et al.*⁸ The majority of our HIV-positive patients had large effusions, and pericardiostomy was therefore the commonest procedure

performed in this group. Effusions in HIV-negative patients were small and were mainly drained by pericardiocentesis. This is in keeping with the findings of other studies.⁹ Pleural effusion was associated with pericardial effusion, mainly in HIV-positive patients. This association has also been reported by Kaplan *et al.*,¹⁰ and it may be related to the large size of the pericardial effusions. Other studies have reported pericarditis as the commonest pericardial condition.¹¹⁻¹⁴ Tuberculosis was the commonest cause of pericardial disease in our patients. The association of tuberculosis and HIV infection has been described,⁹ although some reports suggest that tuberculosis is less common than opportunistic infections and neoplasms as a cause of pericardial disease.⁵ Of the patients in our study, 7 had malignant pericardial disease (16.7% of HIV-positive patients). Most series have reported Kaposi's sarcoma to be the commonest malignancy in HIV patients, mainly as a result of the documented association between this malignancy and HIV infection.¹⁵ Purulent pericarditis was noted in the majority of HIV-negative patients. This has previously been reported from our centre.¹⁶

Of the HIV-positive patients in our study, 4 (9.5%) died. Mayosi *et al.* reported a higher mortality rate (26%), and found mortality to be highest in those with clinical AIDS or who were haemodynamically unstable.¹⁰

CONCLUSION

Although not commonly looked for clinically, cardiac involvement in HIV-positive patients is a reality, with pericardial effusion being the commonest mode of presentation in our environment. We advocate that patients with pericardial effusion be investigated for HIV infection, and likewise that all HIV-infected individuals should undergo periodic cardiac evaluation, including echocardiography, in order to identify sub-clinical pericardial and cardiac diseases.

REFERENCES

- Akhras F, Dubrey S, Gazzard B, et al. Emerging pattern of HIV infected homosexual subjects with and without opportunistic infections; a prospective colour flow Doppler echocardiographic study. *Eur Heart J* 1994;15:68-75.
- Bosari OA, Opadijo OG, Adeyemi OA. Cardiac diseases in HIV and AIDS. *Internet Journal of Cardiology* 2008;5(2).
- Susan RH, Marvin B, Andrew VT, et al. Unsuspected cardiac abnormalities in AIDS: an echocardiographic study. *Chest* 1999;96:805-808.
- Longo-Mbenza B, Tondangu K, Seghers KV, et al. HIV infection and pericardial diseases in Africa. *Arch Mal Coeur Vaiss* 1997;90(10):1377-1384.
- Mastroianni A, Coronado O, Chiodo F. Tuberculous pericarditis and AIDS: Case report and review. *Eur J Epidemiol* 1997;13(7):755-759.
- Magula NP, Mayosi BM. Cardiac involvement in HIV infected people living in Africa; a review. *Cardiovasc J S Afr* 2003;14(15):231-237.
- Ntsekhe M, Hakim J. Impact of human immunodeficiency virus infection on the cardiovascular system. *Circulation* 2005;112(23):3602-3607.
- Kwan T, Karve MM, Emerole O. Cardiac tamponade in patients with HIV infection. A report from an inner-city hospital. *Chest* 1993;104(4):1059-1062.
- Monica M, Reynold SR, Hecht M, et al. Large pericardial effusion in AIDS. *Chest* 1992;102:1746-1747.
- Kaplan LM, Epstein SK, Schwartz SL, et al. Clinical, echocardiographic, and hemodynamic evidence of cardiac tamponade caused by large pleural effusions. *Am J Respir Crit Care Med* 1995;151(3):904-908.
- Strang JI, Nunn AJ, Johnson DA, et al. Management of tuberculous pericarditis and tuberculous pericardial effusion in Transkei: results at 10 year follow-up. *QJM* 2004;97(8):525-535.
- Mayosi BM, Burgess LJ, Doubell AF. Tuberculous pericarditis. *Circulation* 2005;112(23):3608-3616.
- Decker CF, Tuazon CU. Staphylococcus aureus pericarditis in HIV infected patients. *Chest* 1994;105(2):615-616.
- Sa I, Moco R, Cabral S. Constrictive pericarditis of tuberculous origin in HIV positive patients: case report and review of literature. *Rev Port Cardiol*. 2006;25(11):1029-1038.
- Jennifer LS, Chester BG, Williams RD, et al. Pericardial effusion with tamponade due to Kaposi's sarcoma in AIDS. *Chest* 1989;95:1359-1361.
- Adebo OA, Osinowo O, Adebajo SA, et al. Purulent pericarditis: A continuing surgical challenge. *J Nat Med Assoc* 1981;73(5):439-443.