



Original Research Article

Chest manifestations of human immunodeficiency syndrome: A study from central Karnataka

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ARTICLE INFO

Article history:

Received 16-03-2020

Accepted 24-03-2020

Available online 13-04-2020

Keywords:

HIV/AIDS

Chest manifestations

Tuberculosis

Pneumonia

CD4 count

ABSTRACT

Background: HIV/AIDS is an important public health problem which may also result in respiratory manifestations. The common respiratory manifestations include tuberculosis, bacterial pneumonia, PCP and others.

Materials and Methods: A cross sectional study was undertaken in order to study the respiratory manifestations of the HIV/AIDS. A total of 80 patients attending Chest and TB OPD of Basaveshwara Medical College and Hospital were studied in detail about the respiratory manifestations. A thorough clinical history and physical examination was conducted on all the patients including laboratory and radiological investigations.

Results: Almost half of the cases were aged between 21 – 30 years and males outnumbered females in this study. Tuberculosis, non-tubercular pneumonitis and Kaposi sarcoma of the lungs was common in patients with CD4 counts of less than 250. The patients with CD4 counts of more than 250 had bacterial pneumonia, pneumocystitis carinii pneumonia, Cryptococcus pneumonia. Streptococcus pneumonia in patients with CD4 counts less than 250 and Staph aureus was the common agent in patients with CD4 count of more than 250.

Conclusion: Prompt recognition of manifestations of chest and prompt treatment in HIV/AIDS patients improves the prognosis of the disease.

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1. Introduction

HIV/AIDS is an important public health problem and is a multisystem disorder affecting different organs in any stage of the disease. The involvement of the chest is often found in all stages of the disease. The literature available shows that, at least 70% of the HIV infected persons will have at least one episode of the respiratory illness during the course.¹⁻³ The pulmonary disease is one of the most frequent complications of HIV/AIDS. Protozoal, viral, bacterial infections and tumours including Kaposi's sarcoma and lymphoma were found to be important chest infections which require indoor treatment in hospital.⁴⁻⁶

Pulmonary tuberculosis is important infection in HIV patients and is one of the important complications especially in India. There is resurgence of this disease after HIV

epidemic and is responsible for spread of multi drug resistant tuberculosis. There is increase in need of the involvement of the physician in evaluation of the effects and side effects of antimicrobials, AKT and HAART.⁷⁻⁹

Considering the above facts, it was decided to take up this study in order to study various manifestations of HIV/AIDS with respect to the TB and Chest department. This also evaluates the impact of CD4 counts and HAART therapy.

2. Materials and Methods

A cross sectional study was undertaken in the department of Chest & TB of Basaveshwara Medical College and Hospital, Chitradurga, India. A total 80 patients with HIV attended the OPD between January 2018 to December 2019. The patients with diagnosed HIV infection and the patients who were HAART and giving consent to participate in the study were included in the study. Severely ill patients and the patients

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without chest symptoms were excluded from the study. Clearance from institution ethics committee and consent of study subjects was obtained before the study was started.

A thorough clinical examination was conducted on each patient with special emphasis on past history of major surgery, blood transfusion, genital ulcer, multiple sexual partners, occupational exposure, drug abuse, history of tuberculosis and AKT, history of consumption of antiretroviral drugs and past history of pneumonia. A detailed physical examination was also conducted to rule out opportunistic infections.

Routine investigations including haematological, biochemical, bacteriological and radiological investigations (X-ray Chest, USG thorax, CT thorax) were conducted. The patients were also subjected for the special investigations including CD4 count, CD8 cell count, Serum LDH and examination of the body fluids. All the patients were also treated accordingly by using appropriate antibiotics. The data thus obtained was entered in a proforma and the data was compiled and analysed using Statistical Package for Social Services (SPSS vs 20). Appropriate statistical tests were used during the analysis.

3. Results

This study had shown that, almost half of the cases were aged between 21 – 30 years. Males outnumbered females in this study.

The fever & chronic diarrhoea which are the key features of AIDS were higher in patients with CD4 count of less than 250. The tuberculosis was common in 63.4% of the cases, non-tubercular pneumonitis and Kaposi sarcoma of the lungs. The patients with CD4 counts of more than 250 had bacterial pneumonia, Pneumocystitis carinii pneumonia, Cryptococcus pneumonia.

The features of AIDS including weight loss, lymphadenopathy, chronic diarrhoea and oral candidiasis were higher in patients who were not on ART. Chest manifestations including Tuberculosis and Kaposi sarcoma was higher in patients with not on ART and bacterial pneumonia, Pneumocystitis carinii pneumonia, Cryptococcus, non-tubercular mycobacteria, nonspecific pneumonitis were higher in patients who were on ART.

Streptococcus pneumonia was the main agent resulting bacterial pneumonia in patients with CD4 counts less than 250 and Staph aureus was the common agent in patients with CD4 count of more than 250.

In the patients with CD4 count of less than 250, cavitary lesions, upper lobe infiltrate was higher in patients with CD4 counts of less than 250. The patients with CD4 counts of more than 250 had middle and lower lobe infiltrates, cavitary lesions and pleural effusion.

4. Discussion

This study was mainly undertaken to study the chest manifestations in patients with HIV and AIDS. This study had shown that, about half of the cases were aged between 21–30 years and males outnumbered females. A study by Shah et al had shown that, age between 15–39 years age group was commonly affected and males outnumbered females.¹⁰ Padyana et al., also observed similar findings.¹¹

The fever & chronic diarrhoea were higher in patients with CD4 count of less than 250. The tuberculosis, non-tubercular pneumonitis and Kaposi sarcoma of the lungs were higher in patients with CD4 counts of more than 250. The patients with CD4 counts of more than 250 had bacterial pneumonia, Pneumocystitis carinii pneumonia, Cryptococcus pneumonia. In a study by Shah et al., weight loss was noted in 72%, fever in 88%, lymphadenopathy in 22%, chronic diarrhoea in 16% and oral candidiasis in 50% of the cases. Tuberculosis was the common respiratory infection followed by bacterial pneumonia.¹⁰ A study by Daley et al had shown that, the tuberculosis was found in 75% and bacterial pneumonia in 14% of the cases.¹² In a study by Shahapur et al., Pulmonary tuberculosis, herpes, candidiasis, cryptosporidial diarrhoea were common in patients with CD4 count of 200 – 499/ μ l and disseminated tuberculosis, Pulmonary tuberculosis, candidiasis, bacterial pneumonia were common in patients with CD4 count of less than 200/ μ l.¹³

The features of AIDS including weight loss, lymphadenopathy, chronic diarrhoea and oral candidiasis and chest manifestations including Tuberculosis and Kaposi sarcoma was higher in patients with not on ART. Bacterial pneumonia, pneumocystitis carinii pneumonia, Cryptococcus, non-tubercular mycobacteria, nonspecific pneumonitis were higher in patients who were on ART. Streptococcus pneumonia was the main agent in patients with CD4 counts less than 250 and Staph aureus was the common agent in patients with CD4 count of more than 250. In a study by Wallace et al,¹⁴ the tuberculosis was present in 5%, bacterial pneumonia in 42% and PCP in 45% of the cases.⁷

The radiological manifestations have shown that, cavitary lesions, upper lobe infiltrate was higher in patients with CD4 counts of less than 250. The patients with CD4 counts of more than 250 had middle and lower lobe infiltrates, cavitary lesions and pleural effusion. A study by Shah et al had shown that, the cavitary lesions were found in 21%, upper lobe infiltrate in 21%, middle and lower lobe infiltrate in 45% of the cases.¹⁰ In a study by Lessnau et al., the cavitary lesion were found in 6%, upper lobe infiltrate in 25%, middle and lower lobe infiltrate in 41%, adenopathy in 42%, pleural effusion in 29% and military pattern in 13% of the cases.¹⁵

Table 1: Distribution of the study group according to socio demographic factors

Characteristics	Frequency		Percent
	Less than 20 years		
Age group	21 – 30 years	4	5.0
	31 – 40 years	36	45.0
	41 – 50 years	26	32.5
	51 – 60 years	10	12.5
		4	5.0
Sex	Male	41	51.3
	Female	39	48.8

Table 2: Distribution of the chest manifestations of the study group according to CD 4 count

Clinical characteristics	CD4 count		Total n (%)
	Less than 250	More than 250	
	n (%)	n (%)	
Weight loss	25 (61.0)	26 (66.7)	51 (63.8)
Fever	31 (75.6)	23 (59.0)	54 (67.5)
Lymphadenopathy	8 (19.5)	13 (33.3)	21 (26.2)
Chronic diarrhoea	10 (24.4)	7 (17.9)	17 (21.2)
Oral candidiasis	14 (34.1)	6 (15.4)	20 (25.0)
Tuberculosis	26 (63.4)	24 (61.5)	50 (62.5)
Bacterial pneumonia	7 (17.1)	8 (20.5)	15 (18.8)
Pneumocystitis carinii pneumonia	7 (17.1)	12 (30.8)	19 (23.8)
Cryptococcus	9 (22.0)	9 (23.1)	18 (22.5)
Non tubercular mycobacteria	9 (22.0)	6 (15.4)	15 (18.8)
Nonspecific pneumonitis	15 (36.6)	8 (20.5)	23 (28.8)
Kaposi sarcoma	13 (31.7)	10 (25.6)	23 (28.8)

Table 3: Distribution of the chest manifestations of the study group according to ART treatment

Clinical characteristics	ART		Total n (%)
	Not on ART	On ART	
	n (%)	n (%)	
Weight loss	21 (65.6)	30 (62.5)	51 (63.8)
Fever	20 (62.5)	34 (70.8)	54 (67.5)
Lymphadenopathy	12 (37.5)	9 (18.8)	21 (26.2)
Chronic diarrhoea	8 (25.0)	9 (18.8)	17 (21.2)
Oral candidiasis	8 (25.0)	12 (25.0)	20 (25.0)
Tuberculosis	22 (68.8)	28 (58.3)	50 (62.5)
Bacterial pneumonia	2 (6.2)	13 (27.1)	15 (18.8)
Pneumocystitis carinii pneumonia	5 (15.6)	14 (29.2)	19 (23.8)
Cryptococcus	7 (21.9)	11 (22.9)	18 (22.5)
Non tubercular mycobacteria	5 (15.6)	10 (20.8)	15 (18.8)
Nonspecific pneumonitis	7 (21.9)	16 (33.3)	23 (28.8)
Kaposi sarcoma	11 (34.4)	12 (25.0)	23 (28.8)

Table 4: Distribution of the Bacterial Pneumonia according to CD 4 count

Bacterial pneumonia	CD4 count	
	Less than 250	More than 250
	n (%)	n (%)
Klebsiella	1 (2.4)	0
P. aeruginosa	0	1 (2.6)
Staph aureus	0	4 (10.3)
Strept. Pneumonia	6 (14.6)	3 (7.7)

Table 5: Distribution of the Bacterial Pneumonia according to CD 4 count

Radiological findings	CD4 count	
	Less than 250 n (%)	More than 250 n (%)
Absent	19 (46.3)	24 (61.5)
Cavitatory	7 (17.1)	4 (10.3)
Middle and lower lobe infiltrates	4 (9.8)	6 (15.4)
Miliary pattern	1 (2.4)	0
Pleural effusion	1 (2.4)	4 (10.3)
Upper lobe infiltrate	9 (22.0)	1 (2.6)

5. Conclusions

The prompt recognition of the features of respiratory diseases may also leads to the diagnosis of HIV/AIDS. Early recognition and prompt treatment are at most important in HIV patients for better prognosis.

6. Source of Funding

None.

7. Conflict of Interest

None.

8. Acknowledgement

None.

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Cite this article: Bhangari K, Sangolli BS. Chest manifestations of human immunodeficiency syndrome: A study from central Karnataka. *IP Indian J Immunol Respir Med* 2020;5(1):43-46.