

Studys on the Prevention and Treatment of Tuberculosis in HIV/AIDS Patients

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Abstract: The present study was conducted to explore and analyze the prevention and treatment of tuberculosis in HIV/AIDS patients. We analyzed and studied 80 cases of HIV/AIDS combined with tuberculosis, 80 cases of simple tuberculosis and 80 cases of healthy physical examination admitted to Guiping people's hospital from March 2018 to March 2019. The patients were classified as cases, tuberculosis, healthy group, and three groups of patients, respectively, for acid fast bacilli smear tests, mycobacterium tuberculosis culture test, tuberculin test, chest radiographic testing, and cases, tuberculosis patients were symptomatic treatment, at the end of the study of the statistical methods can be compared to the three sets of results. The results of chest imaging examination in the three groups were significantly different. The detection rates of diffuse chestnut granulosa shadow, fibrous cable shadow, exudative frosted glass shadow and multi-lung field distribution in the case group were higher than those in the tuberculosis group and the healthy group ($P < 0.05$). The detection rates of cavity and pleurisy in the case group were lower than those in the tuberculosis group and the healthy group ($P < 0.05$). The detection rates of the middle and lower lung fields and the upper apical lung fields in the case group were no different from those in the tuberculosis group ($P > 0.05$). However, the detection rate was higher than that of the healthy group ($P < 0.05$). The effective rate of tuberculosis group was significantly higher than that of case group after symptomatic treatment ($P < 0.05$). Clinical data show that there are certain similarities between the clinical symptoms and pathological manifestations of HIV/AIDS and tuberculosis, but the treatment difficulty of HIV/AIDS combined with tuberculosis is higher. In order to improve the treatment effect of HIV/AIDS patients, timely prevention of tuberculosis should be done to reduce the probability of HIV/AIDS combined with tuberculosis and improve the clinical treatment effect.

1. Introduction

HIV (human immunodeficiency virus) infection will induce the corresponding immune damage,

immune deficiency and immune dysfunction, after the acute infection period and asymptomatic period, the patient's condition will gradually enter AIDS (AIDS) period, and cause serious damage to the body function [1]. With the increase of the incidence of AIDS in our country, the prevention of AIDS has been strengthened, has achieved some results. However, intensive clinical research on AIDS has revealed a high incidence of HIV/AIDS associated with tuberculosis, one of the most common complications [2]. Asia has a high incidence of HIV/AIDS double infection, and the incidence rate is only lower than that in Africa. After the onset of HIV/AIDS, timely and effective treatment is needed to control the patient's condition and delay the patient's survival time. However, after concurrent tuberculosis, the patient's condition deteriorates further and the treatment difficulty is further enhanced, which will cause adverse effects on the patient's family and society [3]. Based on this, this study explores and analyzes the prevention and treatment of tuberculosis in HIV/AIDS patients, as reported below.

2. Materials and methods

2.1 Clinical data

From March 2018 to March 2019, 80 patients with HIV/AIDS complicated with tuberculosis, 80 with simple tuberculosis and 80 with healthy physical examination were admitted to Guiping people's hospital, and the patients were classified as case group, tuberculosis group and healthy group respectively. The ratio of male to female in the case group was 50: 30; The age ranges from 21 to 67 years (44.15 ± 5.23). The ratio of men to women in the tuberculosis group was 48:32; The age ranged from 21 to 68 (44.66 ± 5.41) years. The ratio of men to women in the healthy group was 46:34; The age ranged from 21 to 68 (44.51 ± 5.39) years. There was no significant difference in gender and age among the three groups ($P>0.05$), but the data were comparable.

Inclusion criteria: all patients in the case group met the diagnostic criteria in the diagnostic criteria for AIDS and HIV infection [4]. All the patients in the case group and the tuberculosis group met the diagnostic criteria in the TB outpatient treatment standard (2012 edition) [5]. All patients were informed of the study and volunteered to participate in the study.

Exclusion criteria: patients with extremely low immunity after combined respiratory diseases, combined malignant tumors, organ transplantation, long-term hormone therapy, abnormal coagulation function, etc. Patients with mental disorders or cognitive impairment; Unable to cooperate with the study, died in the middle of the patient.

2.2 Methods

2.2.1 Detection methods

(1) HIV test: screening HIV/AIDS by enzyme-linked immunoassay, western blot test and double antigen sandwich method for screening positive patients; (2) acid-fast bacilli smear test, collect the patient's cerebrospinal fluid, sputum or pus and other specimens, smear, and through Ziehl-Neelsen staining microscopy; (3) combined with bifidobacterium bifidus culture test, through the solid roche slant culture medium; (4) tuberculin test, the patient with tuberculin test, after 48h-72 hours, the measurement of the size of the induration, which 5-9mm is weak positive, 10-19mm is positive, 20mm and above is strong positive; (5) chest imaging detection, take the patient's chest position X-ray, and by our hospital radiology department, the department of prevention physicians together with the diagnosis.

2.2.2 Treatment

Patients in the TB group were treated by DOTS alone, and anti-tb treatment was carried out in

the early stage, the whole course and the combination. The intensive treatment period was 2 months and the consolidation treatment period was 4 months. Medication is as follows: once every other day, take medicine in the morning, pyrazinamide 0.5g, isoniazid 0.3g, rifampicin 0.45g, ethambutol 0.75g.

The case group received antiviral treatment on the basis of the tuberculosis group, and the first-line treatment was tenofovir (or zidovudine) + efavirene (nevirapine) + lamivudine.

2.3 Observation

(1) results of acid fast bacilli smear test, combined bifidobacterium culture test and tuberculin test in three groups;

(2) results of chest imaging examination in the three groups;

(3) The therapeutic effect and efficacy criteria of the case group and the tuberculosis group [6] were as follows: obvious effect: the patient's clinical symptoms improved significantly, sputum turned negative, chest imaging showed obvious absorption of the lesion and obvious reduction of the cavity. Effective: the patient's clinical symptoms improved, and chest imaging showed absorption of the lesion and reduction of the cavity. Invalid: not up to the above standards.

2.4 Statistical analysis

SPSS 22.0 statistical software was used to analyze the data. T test was used for measurement data, X^2 test for counting data, and $P < 0.05$ was considered statistically significant.

3. Results

3.1 Comparison of three groups

There were significant differences in acid-fast bacilli smear test, mycobacterium tuberculosis culture test and tuberculin test among the three groups. The number of positive acid-fast bacilli smear test, positive mycobacterium tuberculosis culture test and positive tuberculin test in the case group were all lower than that in the tuberculosis group. Among them, the number of positive acid-fast bacilli smear, positive mycobacterium tuberculosis culture test and positive tuberculin test in the healthy group were all lower than that in the case group and the tuberculosis group ($P < 0.05$).

Table 1 comparison of results of acid-fast bacilli smear test, combined bifidobacterium culture test and tuberculin test among three groups (n/ %).

Group	Case	Acid fast bacilli smear test positive	TB culture test positive	Tuberculin test positive
Case group	80	26 (32.5%)	50 (62.5%)	41 (51.3%)
TB group	80	34 (42.5%)	58 (72.5%)	53 (66.3%)
Health group	80	1 (1.3%)	0	2 (2.5%)
X^2	-	6.098	7.232	5.441
P	-	0.01	0.01	0.01

3.2 Comparison of chest imaging findings

The results of chest imaging examination in the three groups were significantly different. The detection rates of diffuse chestnut granulosa shadow, fibrous cable shadow, exudative frosted glass shadow and multi-lung field distribution in the case group were higher than those in the tuberculosis

group and the healthy group ($P<0.05$).The detection rates of cavity and pleurisy in the case group were lower than those in the tuberculosis group and the healthy group ($P<0.05$).The detection rates of the middle and lower lung fields and the upper apical lung fields in the case group were no different from those in the tuberculosis group ($P>0.05$).However, the detection rate was higher than that of the healthy group ($P<0.05$).

Table 2 comparison of chest imaging results of three groups.

Group	Case group	TB group	Health group
Filled with chestnut - like shadows	43 (53.8%)	33 (41.3%)	1 (1.3%)
Fiber cord shadow	40 (50.0%)	34 (42.5%)	1 (1.3%)
Oozing frosted glass shadow	49 (61.3%)	39 (48.8%)	0
Multiple lung field distribution	26 (32.5%)	16 (20.0%)	0
Pulmonary cavity	12 (15.0%)	17 (21.3%)	0
Pleurisy	12 (15.0%)	19 (23.8%)	1 (1.3%)
The middle and lower lung field	55 (68.8%)	56 (70.0%)	0
Superior apical lung field	33 (41.3%)	32 (40.0%)	1 (1.3%)

3.3 The therapeutic effect of case group and tuberculosis group

After symptomatic treatment, the effective rate of patients in the TB group was significantly higher than that in the case group ($P<0.05$).

Table 3 treatment effect of case group and tuberculosis group (n/ %).

Group	Case	Significantly effective	Effective	Invalid	Effective rate
Case group	80	28	34	18	62 (77.5%)
TB group	80	34	37	9	71 (88.9%)
X ²	-	-	-	-	6.002
P	-	-	-	-	0.01

4. Discussion

On the basis of the HIV/AIDS epidemic, the infection rate of tuberculosis is gradually increasing.Because HIV/AIDS and TB can affect each other, and then form a vicious circle, leading to the patient's condition continues to worsen.Clinical studies [7] indicate that an hiv-negative patient has a 10% chance of developing TB after being infected with mycobacterium tuberculosis.Hiv-positive people have a 10% chance of developing TB within a year.Thus after the diagnosis of HIV/AIDS, it is necessary to timely give preventive anti-tuberculosis treatment to prevent patients from developing tuberculosis, aggravate the HIV/AIDS condition of patients, lead to further enhancement of the difficulty of clinical treatment, and finally affect the life safety of patients.

Tuberculin test results can be used to determine whether the patient has tuberculosis infection.However, HIV/AIDS patients due to their own immune deficiency, so the CD4 cell content is significantly reduced, so the false negative rate of tuberculin test is relatively high, and the positive detection rate is relatively low.The results of this study support the above view, and the tuberculin test positive 51.3% of the TB group was significantly lower than that of the case group

66.3%.

However, it is clinically clear that, after the diagnosis of HIV/AIDS, the need for timely relevant testing, timely preventive anti-TB treatment. There are many methods of preventive anti-TB treatment, and different methods have different effects. Currently, isoniazid prophylactic antituberculosis therapy is widely used in the clinic. Chinese "AIDS clinical treatment and care" teaching material clearly points out, after HIV/AIDS patient is infected with tuberculosis bacterium, tuberculin is positive, CD4 + lymphocyte count is below 200 / ml when need to undertake prophylactic anti-tuberculosis treatment. Isoniazid was taken orally once a day for 12 months. Or isoniazid + rifapentine once a day for 6 months [8]. The incidence of TB in patients can be reduced by preventive anti-TB treatment. However, for HIV/AIDS patients who have developed TB, there is still a need for aggressive symptomatic treatment. But the results of this study indicated that the treatment efficiency of 77.5% of patients with HIV/AIDS combined with tuberculosis was significantly lower than that of 88.9% of patients with simple tuberculosis.

5. Conclusion

Overall, HIV/AIDS combined with TB is more harmful and difficult to treat, so it is clinically necessary to give active preventive anti-tb treatment after the diagnosis of HIV/AIDS to reduce the probability of HIV/AIDS combined with TB.

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