STUDIES OF RELEVANT INFLUENCING FACTORS OF SERUM LEVELS OF B-DEFENSIN IN AIDS PATIENTS

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Abstract:

Background: Although in vitro studies have shown that β-defensin has antiviral effect on HIV virus, the relationship between oral mucosa and β-defensin still needs to be further studied due to the complexity of the general condition of AIDS patients.

Objective: To find the relevant influencing factors of serum levels of β-defensin in AIDS patients. Methods: The detections of the levels of β-defensin 1, 2 and 3 are the same as those performed in Research 1. Bivariate correlation analysis was used to study the relationship between the levels of β-defensin 1, 2 and 3 and sex, age, CD4 lymphocyte count, antiretroviral therapy (ART), the presence or absence of oral Hairy Leukoplakia (OHL), the presence or absence of oral fungal infection (OFI), and the presence or absence of nervous system diseases (NS) in oral mucosal, the presence or absence of respiratory diseases (RS). 150 cases of AIDS patients were grouped and compared based on CD4 lymphocyte count, whether receiving antiretroviral therapy, whether suffering from neurological diseases, respiratory diseases, oral fungal infections, oral hairy leukoplakia, oral mucosal disease (OMD), so as to determine the levels of β-defensin 1, 2 and 3 in each group.
Results:
1. The results of bivariate correlation analysis showed that β-defensin 1 level is positively correlated to the respiratory disease (P = 0.001); β-defensin 1 level is positively correlated to the nervous system diseases (P = 0.014) and oral fungal infection (P=0.000); the β-defensin 3 level and all of the studied factors were not significantly correlated.
2. In HIV+ patients, CD4 lymphocyte counts is less than 200/mm3, and β-defensin 1 level is significantly higher than the control group (P <0.05).β-defensin 2 level is significantly lower (P <0.05) and gradually reduced, which is independent from the CD4 lymphocyte count.
3. In HIV+ ART+ patients, β-defensin 1 level is significantly higher than that of control group (P = 0.01). In HIV+ART+ group and HIV+ART- group, β-defensin 2 level is significantly lower than that of control group (P<0.05).
4. As for systemic disease, the level of β-defensin 1 in HIV+ NS- group was significantly higher than that the control group (P = 0.003). In HIV+NS+ group and HIV+NS- group, the level of β-defensin 2 were significantly decreased compared with control group (P <0.05). In HIV+RS+ group and HIV+RS- group, the level of β-defensin 1 was significantly higher than that of control group (P < 0.05), and in HIV+RS+ group and HIV+RS- group, the level of β-defensin 2 was significantly lower than that of control group (P < 0.05).
5. As for oral mucosal disease, the level of β-defensin 2 in HIV+OFI+ group and HIV+OFI- group was significantly higher than the control group (P<0.05). In HIV+OFI+ group and HIV+OFI- group, the level of β-defensin 2 were significantly decreased compared with control group (P <0.05). In HIV+OMD- group, the level of β-defensin 1 was significantly higher than that of control group (P=0.01), while in HIV+OMD+ group, the level of β-defensin 2 was significantly lower than that of control group (P < 0.05). In HIV+OMD- group, the level of β-defensin 2 was significantly higher than that of control group.
6. The presence of oral mucosal disease suggests low systemic immune status, and the results showed that CD4 lymphocyte count was positively correlated with the oral hairy leukoplakia (P = 0.005) and oral fungal infection (P = 0.013), while β defensin 2 level was positively correlated with oral fungal infection (P = 0.000).
Conclusion:
1. Elevated level of serum β-defensin 1 is closely related to the respiratory system diseases in AIDS patients, and elevated serum β-defensin 2 level is closely related to neurological system diseases in AIDS patients. Namely: one of the immune indicators of systemic diseases in AIDS patients is the change of β-defensin level in AIDS patients.
2. The total numbers of patients suffering from oral hairy leukoplakia, fungal infections, and oral mucosal disease are closely related to the different levels of serum β-defensin 1 or 2, and these syndromes suggest the abnormal serum level of β-defensin in AIDS patients.
3. Serum β-defensin level can suggest low systemic immune status in AIDS patients, while compared to the serum β-defensin level, CD4 lymphocyte count is more sensitive index.

Keywords: β-defensin, CD4 lymphocyte count, ART, systemic disease, oral mucosal disease.