

论著

## T细胞第二信号受体-CD28分子在HIV/AIDS患者中的异常改变

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**摘要** 摘要: 目的 研究T细胞第二信号受体-CD28分子在人类免疫缺陷病毒(HIV)感染/获得性免疫缺陷综合征(AIDS)患者中的异常改变,探讨其临床意义。方法 采用流式细胞术检测HIV/AIDS患者外周血CD4+T细胞表面CD28分子的表达,对278例未接受过高效抗逆转录病毒治疗(HAART)的患者进行横断面研究,对其中59例接受规律HAART的患者于开始治疗前,治疗后第1、3、6、9、12月末进行随访。以56例健康献血员作为正常对照。结果 HIV/AIDS患者外周血CD4+T细胞表面CD28分子表达显著下调( $P<0.001$ ),且CD28分子表达比例与其CD4+T细胞计数呈正相关( $r=0.484, P<0.001$ ),与血浆病毒载量呈负相关( $r=-0.300, P<0.001$ )。给予HAART 1个月后CD4+T细胞的CD28表达比例中位数由75%快速恢复至90%( $P<0.001$ )。HAART期间6个时间点的CD28表达比例中位数与病毒载量中位数呈负相关( $r=-0.829, P=0.042$ ),与CD4+T细胞计数中位数之间未发现显著相关性。结论 HIV/AIDS患者外周血CD4+T细胞表面CD28分子表达明显减少,HAART可有效重建CD4+T细胞功能亚群(CD4+CD28+T)的数量,HAART后CD28表达上调可能与病毒载量的控制密切相关。

**关键词** [获得性免疫缺陷综合征](#) [人类免疫缺陷病毒](#) [CD28](#) [流式细胞术](#) [高效抗逆转录病毒治疗](#)

分类号

## Abnormal Changes of CD28 Expression on CD4+ T Cells in Treatment-naive and Highly Active Antiretroviral Therapy-treated HIV/AIDS Patients

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**Abstract** ABSTRACT: Objective To study the alteration of the expression of CD28 on CD4+ T cells in HIV/AIDS patients and observe the dynamics of CD28 expression under highly active antiretroviral therapy(HAART). Methods The expression of CD28 on CD4+ T cells, CD4 counts, and plasma viral load were measured by flow cytometry and bDNA assays in 278 treatment-naive HIV/AIDS patients and 56 healthy controls. In addition, the evolution of these parameters was assessed in 59 patients who initiated HAART and were followed for 12 months in regular 3-month visits. Results The median level of CD28 on CD4+ T cells decreased dramatically in treatment-naive HIV-positive individuals than in HIV-negative controls( $P<0.001$ ). The expression rate of CD28 molecule was positively correlated with CD4 counts ( $r=0.484, P<0.001$ ), and negatively correlated with plasma viral load ( $r=-0.300, P<0.001$ ). In patients who had received one month of standard HAART, the level of CD28 on CD4+ T cells increased rapidly from 75.0% to 90.0% ( $P<0.001$ ). Moreover, there was a negative correlation between the median CD28 expression and the median viral load ( $r=-0.829, P=0.042$ ). Conclusions The level of CD28 expression on CD4+T cells is down-regulated in treatment-naive HIV/AIDS patients. HAART can successfully restore the lymphocyte subsets of CD4+CD28+T cells. The up-regulation of CD28 expression after HAART may be closely correlated with the suppression of the viral replication.

**Key words** [acquired immunodeficiency syndrome](#) [human immunodeficiency virus](#) [CD28](#) [flow cytometry](#) [highly active antiretroviral therapy](#)

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