Short Communication

Discordance between Absolute and Percentage CD4 Count in Relation to the Degree of Liver Fibrosis in HIV Patients Coinfected with Hepatitis C

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Abstract

Clinical decisions in HIV infection are based on the CD4 lymphocyte count. Some studies have reported a downward tendency in absolute CD4 count with liver cirrhosis which could make it more useful to use percentage CD4 values. A study was made to determine whether the Fibroscan® (F) findings are related to the existence of discordance between the absolute and percentage CD4 counts, and to evaluate the possible existence of an F cutoff point indicating the use of %CD4 instead of the absolute count. In a first sample of 60 individuals, validated with data on 50 cases from another hospital, an analysis was made of the relationship between the Fibroscan® results and discordance of the absolute versus the percentage CD4 counts. Above 7 Kp (with high sensitivity) and above 32 Kp (with high specificity), the clinical decisions should be based on %CD4, not on the absolute counts.
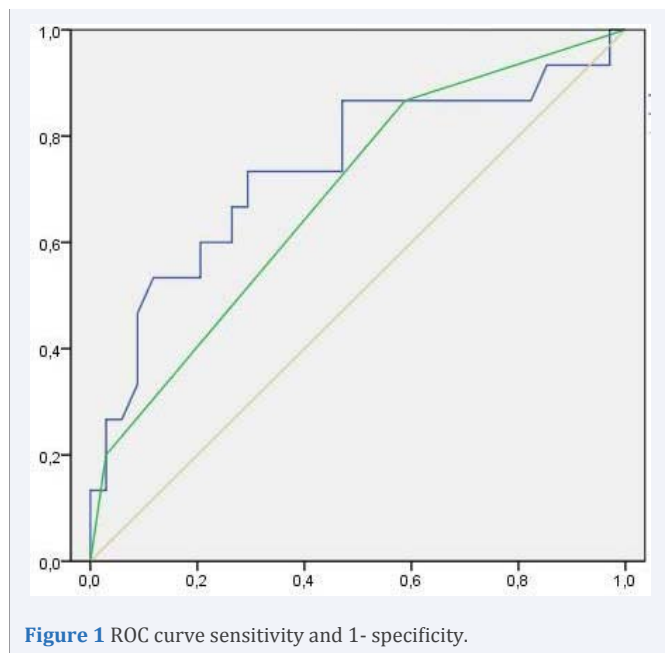
INTRODUCTION

The absolute CD4 cell count has been identified as a marker in human immunodeficiency virus (HIV) infection owing to its significant association to increased risk of HIV disease progression and mortality [1,2]. Clinical decisions such as the start of treatment or the indication of prophylactic measures in HIV infection are based on the CD4 lymphocyte count. Some studies have reported a downward tendency in absolute CD4 counts in patients with liver cirrhosis, possibly related to splenic sequestration, which could make it more useful to use percentage CD4 (%CD4) values in decision making [3-6]. The present study examines whether the Fibroscan® (F) results are related to the existence of discordance between the absolute and percentage CD4 counts, and evaluates the possible existence of an F cutoff point indicating the use of %CD4 instead of the absolute count.

MATERIAL AND METHODS

A retrospective, cross-sectional, analytical observational study was made of HIV patients coinfected with HCV and subjected to Fibroscan® (F) exploration according to standard practice in our hospital during the year 2013. The exploration was made using a probe adjusted to patient body weight, with

10 valid measurements, IQR 2/3 of the final exploratory result, and IQ > 60%. The patients were required to have a CD4 count in the three months before F exploration. A sample size of 60 individuals was estimated to afford a sensitivity and specificity of 95%, with a prevalence of 30%, a precision of 10%, and a confidence level of 95%. The primary dependent variable was discordance between the absolute CD4 count and its percentage value, considering subjects with CD4% >28% and CD4 <500 cells or those with CD4% >20% and CD4 <350 cells. Information was also collected referred to age, gender, transaminase levels, blood count, total lymphocyte counts, CD4 and HIV and HCV viremia. We analyzed the relationship of the discordance between CD4 and %CD4 with respect to the rest of the variables using the Student t-test in the case of quantitative parameters and the Fisher exact test in the rest of cases. Non-conditional multivariate logistic regression analysis was then performed, followed by calculation of the area under the ROC curve of F to assess its capacity to diagnose the discordance between CD4 and %CD4. Regarding the cutoff points, we chose the most sensitive and specific value among those that maximized the sum of sensitivity and specificity. A 95% confidence level was considered, with use of the SPSS version 18 statistical packages. In a second phase, the

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Figure 1 ROC curve sensitivity and 1- specificity.

study was validated with data on 50 cases from another hospital with the same inclusion criteria.

RESULTS

A total of 67 patients (mean age 45 years (SD 6); 31% females) were included in the study. Discordance was observed in 13 cases (19.4%). In the bivariate analysis, discordance was related to the degree of fibrosis and to the platelet and lymphocyte count, though statistical significance was only maintained for the degree of fibrosis in the multivariate analysis - the probability of discordance increasing 10% for every 1 Kp increase in F (OR 1.10; CI 1.03-1.16). The area under the ROC curve was 0.82 (CI 0.69-0.95), with sensitivity and specificity values for the identification

of discordance of 90% and 65%, respectively, for 7 Kp, and of 60% and 98% for 32 Kp (Figure 1). In the external validation sample, similar ROC values of 0.74 (CI 0.58-0.90) and levels of sensitivity and specificity of 66% and 97% for 32 Kp were maintained. OR diagnostic IC 21 (1.9-314.0); p = 0.04.

COMMENTS

In HIV patients coinfected with HCV, the degree of fibrosis detected by F is related to discordance between CD4 and %CD4. Accordingly, above 7 Kp (with high sensitivity) and above 32 Kp (with high specificity), the clinical decisions should be based on %CD4, not on the absolute counts.

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