IL-10 HAPLOTYPES AND TNF-α LEVELS ARE ASSOCIATED WITH LOW MUSCLE MASS IN PATIENTS WITH CHRONIC HEPATITIS C


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Background

Despite the negative impact of low muscle mass (MM) on the survival of cirrhotic patients, the mechanisms linked to MM loss are not completely understood in patients with chronic hepatitis C (CHC).

Objectives

To evaluate whether the IL-10 haplotype (−1082G>A, −819C>T, and −592C>A) and serum levels of tumour necrosis factor-alpha (TNF-α) were associated with low MM in CHC patients.

Methods

94 consecutive CHC outpatients (mean age, 50.3 ±11.5 yrs.; 74.5% males; 68.1% without cirrhosis and 31.9% with compensated cirrhosis) and 164 healthy controls were prospectively enrolled. SNPs were genotyped by RT-PCR. Serum levels of TNF-α were measured by ELISA. CHC patients, prospectively, underwent scanning of the lean tissue, appendicular skeletal muscle mass (ASM), and fat mass by dual-energy X-ray absorptiometry. The data analysed included appendicular skeletal mass (ASM) standardized for height (ASMI=ASM/height²). The cut-off points for low ASMI were 5.45 kg/m² and 7.26 kg/m² for women and men, respectively, according to Baumgartner et al. (1998). The International Physical Activity Questionnaire was used to determine the physical activity level.

Results

IL-10 SNPs were in Hardy Weinberg equilibrium. Patients and healthy subjects showed the same distribution of genotypes. Low ASMI was found in 12/94 (12.8%) of the patients with CHC. The IL-10 haplotype ATA (low-producer genotype) was observed in 11/12 (91.7%) of the patients with low ASMI (P=0.03) and in only one of the patients without low ASMI 1/82 (1.2%) (Figure 1). In the multivariate analysis, low ASMI was significantly and independently associated with moderate-to-high physical activity (OR=0.31; 95%CI=0.09-0.98; P=0.05), TNF-α levels (OR=1.06; 95%CI=1.01-1.11; P=0.02) and ATA haplotype (OR=9.87; 95%CI=1.13-94.85; P=0.05).

Conclusion

This is the first study to demonstrate that the IL10 haplotype is associated with low ASMI in CHC patients. We also demonstrated that TNF-α is associated with low ASMI in CHC patients.

LOW PHASE ANGLE IS ASSOCIATED WITH CIRRHOSIS AND LOW MUSCLE MASS IN CHRONIC HEPATITIS C PATIENTS


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Background

Although the use of electrical bioimpedance (BIA) is impaired when patients with hepatic cirrhosis have ascites, oedema and electrolyte disturbances, the measurement of phase angle (PhA) in this population has been shown to be superior to anthropometric and biochemical methods for early detection of malnutrition. The PhA reflects the cellular integrity and normal values (according to sex and age) indicate preserved cellular activity. In patients with chronic hepatitis C (CHC), the role played by PhA has not been completely clarified.

Abstract 1 Figure 1

Association between the prevalence of the IL-10 haplotype ATA and the low appendicular skeletal mass standardized for height (ASMI) in patients with chronic hepatitis C (CHC)
Abstract 2 Table 1: Variables associated with low phase angle (PhA) values in the multivariate analysis adjusted for age, body mass index and gender

<table>
<thead>
<tr>
<th>Variables</th>
<th>Odds Ratio</th>
<th>95% CI</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hepatic cirrhosis</td>
<td>3.74</td>
<td>1.68-8.31</td>
<td>0.001</td>
</tr>
<tr>
<td>Low MAMA</td>
<td>5.66</td>
<td>2.56-12.68</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>value</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Conclusions: Low PhA is associated with negative conditions such as cirrhosis and low muscle mass. Reduced PhA is associated with poor clinical and nutritional prognosis in CHC patients.

Method: 200 children with cancer aged 6 months to 17 years (n=200) were recruited. Dietary data and other relevant anthropometric and biochemical data were collected using a data collection form validated and developed by the researchers. Data processing is still in progress. They were randomly allocated either to a treatment group or a control group (age-matched and gender matched). The treatment group received nutritional advice and support and the control group received the standard treatment.

Results: A significant decrease in the intake of protein and energy with the consumed diets, which are prescribed by doctors in daily practice, was revealed, which is a risk factor for the development of severe nutritional disorders (p<0.5).

Conclusion: Proper use of nutritional support in children with cancer can prevent the development of nutritional deficiencies and associated risks. To improve nutrition management, attention should be paid to nutrition education and assessment tools for doctors and nurses.

Abstract

Objectives: To evaluate the prevalence of low PhA and its association with demographic, clinical and nutritional variables in CHC.

Methods: We prospectively included 222 patients (mean age, 53.7 ± 11.7 years; males, 116 (52.3%); diabetes mellitus, 40 (18.0%); hypertension, 91 (41.0%); cirrhosis, 87 (39.2%); underweight (BMI, <18.5 kg/m² for adults and <22 kg/m² for elderly), 9 (4.1%). The diagnosis and staging of liver disease were based on clinical, biochemical, histological, and radiological criteria. The PhA values were classified into percentiles according to the age/sex and the 5th percentile was adopted as cut-off point. Low muscle mass was defined as <15th percentile for mid-upper-arm muscle area (MAMA). Data were analysed in logistic regression models.

Results: Low PhA and reduced MAMA were identified in 52 (23.4%) and 55 (24.8%) patients, respectively. The Aspartate Aminotransferase to Platelet Ratio Index (APRI) in cirrhotic and non-cirrhotic patients was 3.4 ± 2.8 and 0.8 ± 0.7, P ≤0.001, respectively. In the multivariate analysis, adjusted for age, body mass index and gender, low PhA was significantly and independently associated with cirrhosis (OR=3.74; 95% CI=1.68-8.31; P=0.001) and low MAMA (OR=5.66; 95% CI=2.56-12.68; P≤0.001) (table 1).

Conclusion: Low PhA is associated with negative conditions such as cirrhosis and low muscle mass. Reduced PhA is associated with poor clinical and nutritional prognosis in CHC patients.