

Summit abstracts

1 **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 \pm 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; $P=0.05$).

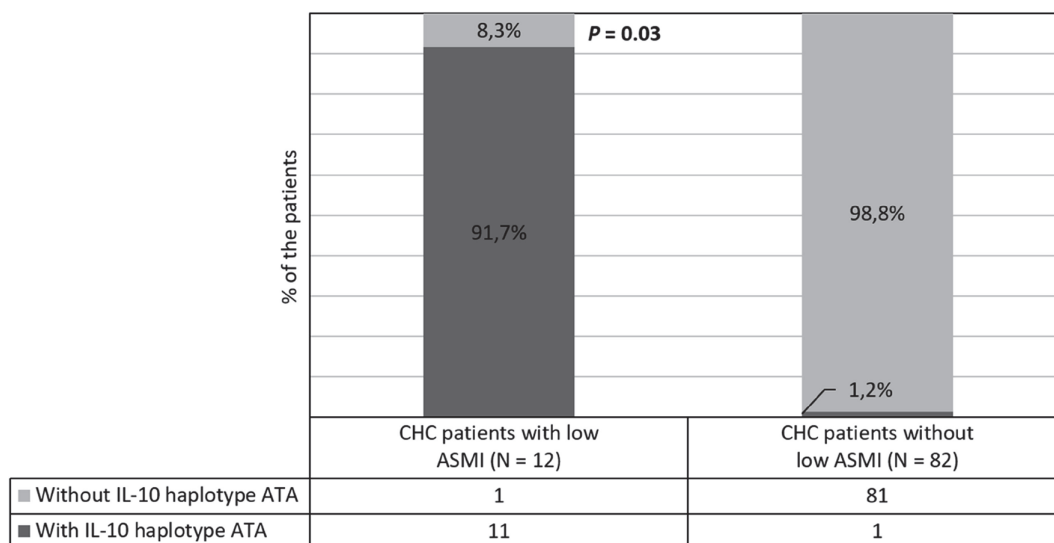
Conclusion This is the first study to demonstrate that the *IL10* haplotype is associated with low ASMI in CHC patients. We also demonstrated that TNF- α is associated with low ASMI in CHC patients.

2 **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)

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, <18.5kg/m² for adults and <22kg/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, $P \leq 0.001$, 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; $P \leq 0.001$) (table 1).

Abstract 2 Table 1 Variables associated with low phase angle (PhA) values in the multivariate analysis adjusted for age, body mass index and gender

Variables	Multivariate Analysis		
	Odds Ratio	95% CI	P-value
Hepatic cirrhosis	3.74	1.68 - 8.31	0.001
Low MAMA value	5.66	2.56 - 12.68	≤ 0.001

MAMA: Mid-upper-arm muscle area.

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.

3 A PILOT STUDY OF NUTRITION MANAGEMENT IN THE DEPARTMENT OF PEDIATRIC ONCOLOGY IN A LOCAL DISTRICT HOSPITAL IN KAZAKHSTAN

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Introduction Maintaining optimal nutritional status is important for children with cancer because it can affect clinical outcomes. This study aimed to prospectively study clinical practices in children's cancer departments to improve the nutritional health of children and adolescents receiving cancer treatment. Currently, there are no unified and harmonized protocols for assessing the nutritional status and nutritional support of children in pediatric wards in Kazakhstan.

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 ($p>0.5$).

Patients who were assigned nutritional support in addition to the General diets during the study had higher nutrient intake. Comparing week zero with subsequent weeks of nutritional support, children in the main group showed significant improvements in the thickness of the triceps skin fold ($P<0.001$), the circumference of the middle shoulder ($P<0.001$), and the circumference of the arm muscles ($P<0.001$), showing that performing nutritional support is better for the evolution of nutrition ($P<0.01$).

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.

4 THE STATE OF NUTRITION EDUCATION IN UK MEDICAL SCHOOLS

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Background Nutrition plays a significant role in decreasing the burden of disease in the population. Quality nutritional teaching is essential to allow clinicians to effectively counsel patients on their diet and nutrition. However, nutrition education at UK medical schools is not rigorously standardised.

Objectives This study aims to quantify the nutritional teaching at UK medical schools and measure variation in teaching methods and duration.

Methods A Freedom of Information request was emailed to all public medical schools in the UK with programmes resulting in a primary medical qualification. Data were requested on how much time was allocated to lectures, practical skills, e-learning and independent study on nutrition. The lognormal and normal distributions were tested with Anderson-Darling, D'Agostino-Pearson and Shapiro-Wilk tests.

Results Of thirty-seven universities contacted, twenty-six universities responded (70.2%), four declined to respond, and seven did not provide data (figure 1a). The mean number of teaching hours is 26.9 hours (CI 95%, 14.8–38.8). Universities spend an average of 2.7 hours on group learning (CI 95%, 0.6–4.8) and 12 hours on lectures (CI 95%, 8.5–15.4) (figure 1c). The mean teaching hours were greatest in Year 1 of medical schools at 8.7 hours (CI 95%, 5.9–11.5) (figure 1d). Teaching hours follow a lognormal distribution (LR<0.001) (figure 1b).