

# Metabolic syndrome in childhood acute lymphoblastic leukemia survivors

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## Introduction

A significant number of long-term complications are reported in childhood acute lymphatic leukemia (ALL) survivors, and among them metabolic consequences and metabolic syndrome (MetS). No data are reported about steatosis, which can be associated with metabolic alterations. We aimed to evaluate the prevalence of MetS and steatosis in ALL survivors.

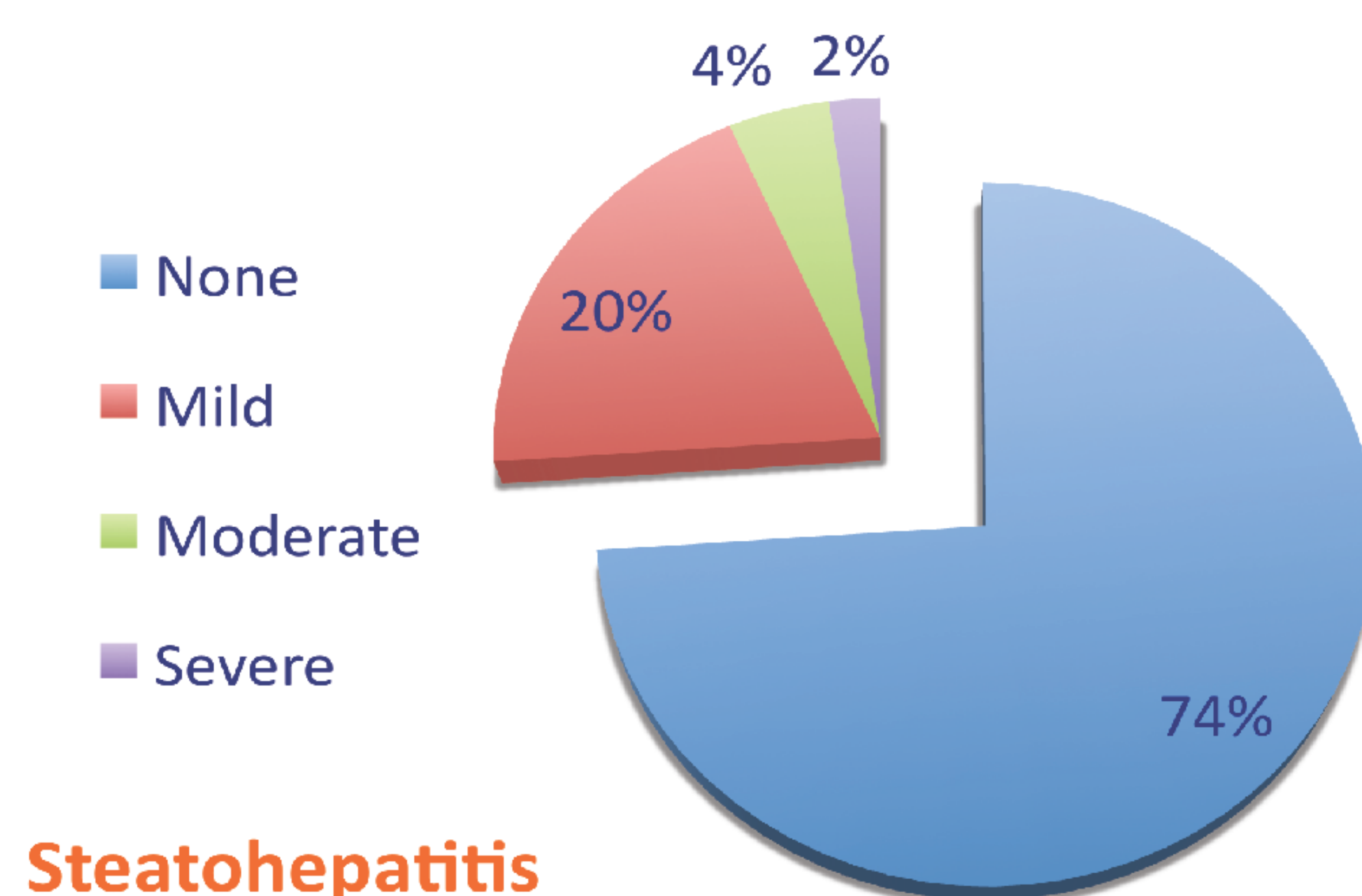
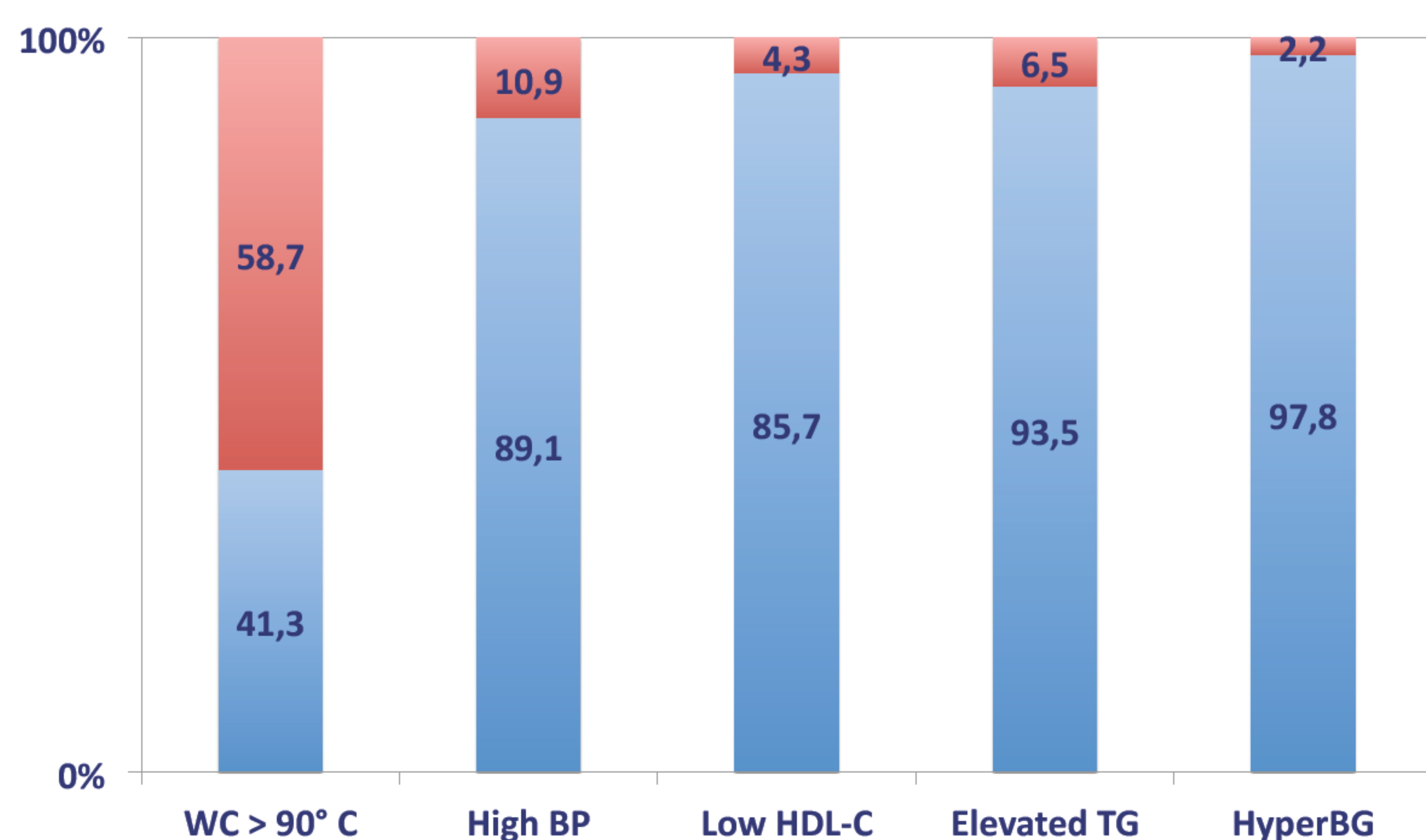
## Subjects

92 (44 males) childhood ALL survivors (at diagnosis  $5.6 \pm 3.8$  yrs old, at recruitment  $10.6 \pm 4.2$  yrs old).

## Methods

Liver ultrasound, BMI, HOMA-IR, waist circumference (WC), triglycerides (TG) levels, blood pressure (BP), HDL cholesterol (HDL-C), serum blood glucose (BG).

## Results



Only 1 patient satisfied the IDF criteria for MetS. The figure on the left displays the prevalence of metabolic alterations. Steatosis was found in 26% of the patients (figure on the right). BMI and HOMA-IR were significantly higher in patients with steatosis than without ( $1.4 \pm 0.9$  vs  $0.4 \pm 0.9$  SDS;  $3.5 \pm 2.8$  vs  $2.3 \pm 1.4$ , respectively), without any difference as concerns WC, HDL-C, TG, and BG. The regression analysis showed that the presence of steatosis was significantly affected by BMI and not by HOMA-IR.

## Discussion

Survivors of childhood ALL are prone to develop MetS. Despite it is well acknowledged that it could be associated with steatosis, there are no studies searching for steatosis in childhood ALL survivors, except for a case report paper describing MetS and steatohepatitis in a young woman treated with total body irradiation and bone marrow transplant at age 6 years for relapsed ALL. In the present study, only 1 patient satisfied the IDF criteria for metabolic syndrome, but metabolic alterations were found in some patients. We found US-assessed paediatric steatosis in 26% of childhood ALL survivors. These patients were more obese and were more insulin resistant than the non steatotic patients. We suggest to search for steatosis in childhood ALL survivors, overall in the obese and insulin resistant ones.



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