Relation between worsening of nutritional status and patients and treatment characteristics in high-nutritional-risk pediatric tumors.

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Background and aim

Malnutrition is an emerging problem in pediatric patients with cancer. We investigated nutritional status variations and potentially related characteristics of patients and treatments.

Methods

Consecutive patients from Pediatric Oncology Unit, aged 0-18 years, with solid tumors at high-nutritional-risk (according to literature data) and on a multimodal treatment (surgery, chemotherapy +/- radiotherapy), were enrolled from 10/2020 to 05/2022. Follow-up ended in 03/2023. Anthropometry was collected at T0 (diagnosis) and T1 (end of treatment); BMIz-scores were calculated. The non-parametric Wilcoxon-signed-rank test was applied comparing the BMIz-score distribution between the two time-points, assessing several variables (gender, age group, cancer treatment).

Results

53 patients were enrolled and completed the specific treatment (M28/F25; median age 10 years, range 0-18). Overall, at diagnosis, the median BMIz-score was -0.08 (IQR: -1.07;0.565); a significant worsening was observed at T1 (median BMIz-score -0.61, IQR: -1.66;0.015; P=0.018). No significance was found in the analysis of the different subgroups (central nervous system/sarcomas/other). A significant worsening was observed in males (P=0.007); in females the BMIz-score did not worsen significantly. Regarding age, the BMIz-score worsened significantly in patients aged 11-18 years (n=26, P=0.0031); in patients aged 0-10 years (n=27) it did not change significantly. Regarding treatments, patients who received chemotherapy + radiotherapy (n=30) showed a significant worsening (P=0.0069) that patients who received only chemotherapy (n=22) did not.

Males

11-18 ys

CTRT
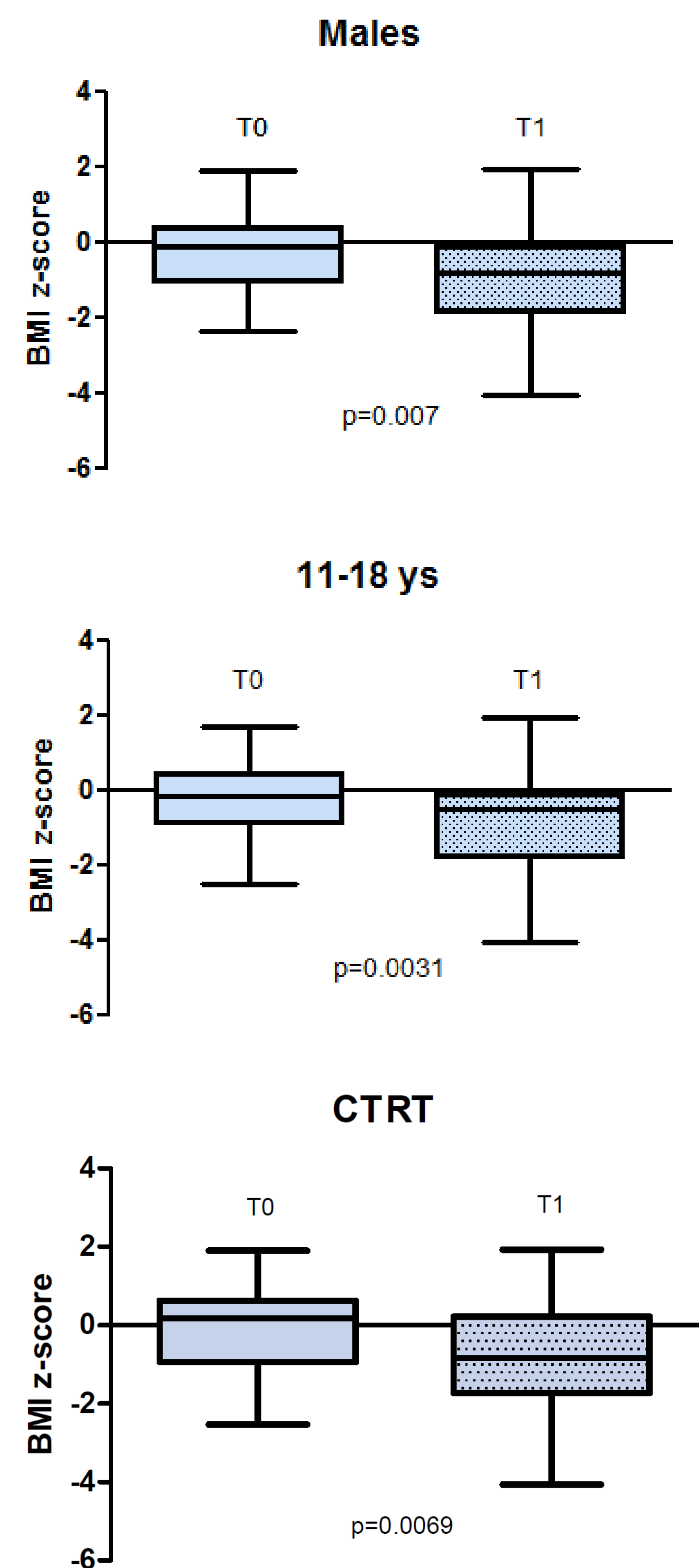
Conclusions

In light of a general worsening of nutritional status during treatment, an early follow-up and intervention is always advisable. Probably due to the patients selection and small sample, data were not confirmed in subgroup analysis. A worsening appeared in males, adolescents and combined therapies: we hypothesize that different awareness, dietary approach and/or increased nutritional requirement may be involved, but further studies are needed to explore the reasons for these relationships.

Patient (n)	53
Median age (y)	10 (range 0-18)
Gender	28 M; 25 F
Median BMI z-score	
Diagnosis	-0.08 (IQR:-1.07;0.565)
End of treatment	-0.61 (IQR:-1.66,0.015)
P value	P=0.018