INSULIN-RESISTANCE AND ABNORMAL GLUCOSE TOLERANCE AFTER PAEDIATRIC HEMATOPOIETIC STEM CELL TRANSPLANTATION IN BLOOD-CANCER SURVIVORS

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BACKGROUND Patients who had undergone hematopoietic stem cell transplantation (HSCT) during childhood have been reported to have a higher risk of early metabolic syndrome (MS) and diabetes mellitus (DM) with a consequent increased risk of cardiovascular disease.

OBJECTIVE AND HYPOTHESES Assess the prevalence and potential risk factors for MS and IGT/DM in young patients who underwent pediatric HSCT.

METHOD Prospective, descriptive, cross-sectional study conducted between November 1, 2012 and July 31, 2014

PATIENTS survivors of childhood blood cancer, treated with HSCT <18 yrs, in complete remission at least 1.5 years after the completion of all treatments

Excluded unaccompanied hormonal defects.

HISTORY
• primary disease
• type of conditioning before HSCT
• history of GVHD
• family history of DM and/or MS

Every 6 mo

Every 12 mo

CLINICAL FOLLOW UP

TSH, FT4, 8 a.m.; serum cortisol +UH, FSH, Testosterone if ≥10 yrs

Liver ultrasonography

COMMENTS

Healthy children admitted to the Outpatient Clinic to undergo OGTT

(family screening for DM/occasional hyperglycemia)

Every 6 mo

Every 12 mo

CLINICAL FOLLOW UP

Wt, Ht, BMI, BP

White, HV, pubertal status

OGTT (glucose, insulin, C-peptide)

RESULTS 7/45 patients (15.5%) showed IGT or DM, 1/45 (2.2%) was obese and none fulfilled the criteria for MS. Abdominal adiposity (waist/height ratio >0.5) was more common in IGT/DM patients, in comparison with both normal glucose tolerance patients (NGT) and controls. Analysis of insulin resistance/sensitivity indexes suggested an insulin-resistant state in HSCT survivors (both NGT and IGT/DM patients) compared to controls. In IGT/DM patients, the use of total body irradiation (TBI) during the conditioning regimen was significantly more common, and the time elapsed from HSCT was significantly longer than in NGT patients.

CONCLUSIONS Blood-cancer survivors treated with HSCT may develop insulin resistance early after transplantation, showing redistribution of fat tissue with central fat accumulation despite a normal BMI. The main factors associated with increased metabolic risk are TBI and time from HSCT. Evaluation of MS and glucose tolerance should be part of hormonal follow up, which should be routinely proposed to these patients in order to prevent cardiovascular disorders.

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