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Peripheral Vascular Endothelial Function is Impaired in Childhood Cancer Survivors

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Introduction: Childhood cancer survivors are a growing population and have an earlier than expected morbidity and mortality from cardiovascular disease. Early identification of subclinical cardiovascular illness could help to prevent these adverse outcomes. We assessed peripheral vascular endothelial function using reactive hyperemia peripheral arterial tonometry (RH-PAT). Augmented reactive hyperemia index (RHI) has been linked in several studies to increased risk for future cardiovascular events.

Methods: 47 childhood cancer survivors with age 20-30 years without previous cardiovascular events and at least 5 years of freedom from cancer disease and 24 healthy controls were evaluated for RHI using the ENDO-PAT 2000 (Itamar Medical). Data on body mass index, arterial blood pressure, and subjective fitness (using a questionnaire) were collected.

Results: Nearly one-third of cancer survivors (31.2%) compared to only 8 % of controls ($p=0.02$) had RHI below the cut-off value of 0.5 (log). There was no association between this index and the patients' cancer duration and therapy ($p>0.2$).

Conclusion: Asymptomatic survivors of childhood cancer have subclinical signs of microvascular disease. This method could prove useful in prevention of cardiovascular disease in this cohort.