

# Study shows long-term effects of radiation in pediatric cancer patients

August 21 2012

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Image: NIH.gov

For many pediatric cancer patients, total body irradiation (TBI) is a necessary part of treatment during bone marrow transplant– it's a key component of long term survival. But lengthened survival creates the ability to notice long term effects of radiation as these youngest cancer patients age. A University of Colorado Cancer Center study recently published in the journal *Pediatric Blood & Cancer* details these late effects of radiation.

"These kids basically lie on a table and truly do get radiation from head to toe. There is a little blocking of the lungs, but nothing of, for example, the brain or the kidneys," says Jean Mulcahy-Levy, MD, research fellow at the CU [Cancer](#) Center and the paper's first author.

Of 15 patients who received TBI before age 3, many developed

endocrine and metabolic problems including testicular malfunction (78 percent), restrictive pulmonary disease due to high levels of blood triglycerides (74 percent), and cataracts (78 percent). Likewise, 90 percent of patients showed abnormally low levels of growth hormone, and 71 percent were considerably under height. Additional late effects of TBI included kidney, liver, skeletal and cardiac malfunction – and three of four patients whose IQ had been tested before TBI showed cognitive decline.

"Fifteen doesn't seem like a large number, but because we have such a good pediatric [bone marrow transplant](#) program here at Children's Hospital Colorado and [radiation](#) therapy program at the CU [Cancer Center](#), we were able to get a large enough cohort of patients to see these overall effects," Mulcahy-Levy says.

The study supports the recommendations of the Children's Oncology Group for long term follow up care for children receiving TBI ([survivorshipguidelines.org](#)). Specifically, Mulcahy-Levy hopes that increasing awareness of likely effects will help [patients](#) and their doctors screen for, detect, and correct likely effects of TBI.

"It's not so much that you want to stop TBI, which is frequently a necessary part of treatment, but this study shows it's important know about these problems in order to address them appropriately and proactively," Mulcahy-Levy says.

Provided by University of Colorado Denver

Citation: Study shows long-term effects of radiation in pediatric cancer patients (2012, August 21) retrieved 4 May 2024 from <https://medicalxpress.com/news/2012-08-long-term-effects-pediatric-cancer-patients.html>

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