

Some childhood cancer survivors may face subsequent renal problems

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Adult survivors of childhood cancers who underwent certain chemotherapy treatments or kidney surgery had worse kidney function that did not recover over time. Because of this, they may be at higher risk for premature renal failure, according to a study published in *Cancer Epidemiology, Biomarkers & Prevention*, a journal of the American Association for Cancer Research.

"Current knowledge suggests <u>childhood cancer</u> survivors (CCS) have an increased risk for impaired <u>kidney function</u> after specific cancer therapies; however, it was not known whether their kidney function recovers with time or if it gets worse," said Renée Mulder, Ph.D., research associate in the Department of Pediatric Oncology at Emma Children's Hospital/Academic Medical Center (EKZ/AMC) in Amsterdam, the Netherlands. "This is the first longitudinal cohort study that takes into account multiple measurements of kidney function over time within the same patient to evaluate time trends in a large group of CCS with a long and nearly complete follow-up.

"We found that the kidney function of CCS treated with nephrotoxic therapy [treatments known to damage the kidneys] declines very soon after treatment and does not recover. Health care providers and survivors should be aware of the increased risk of early kidney damage after nephrotoxic treatment for childhood cancer, because these patients are also at increased risk for developing comorbidities, such as cardiovascular disease," she added.



Mulder and colleagues identified 1,122 study participants from adult CCS who visited the Late Effects of Childhood Cancer outpatient clinic at EKZ/AMC between 1996 and 2010. Participants were 18 years of age or older, and were followed for five to 42 years after a diagnosis and treatment for cancer.

To help determine the functionality of their kidneys, all participants underwent glomerular function testing and had an assessment of their glomerular filtration rate (GFR). Participants underwent at least one measurement of GFR, and 920 of them had two to 15 measurements during follow-ups.

The researchers investigated the effect of kidney-damaging treatments on kidney function over time, including <u>chemotherapy</u> drugs ifosfamide, cisplatin, carboplatin, high-dose methotrexate, and high-dose cyclophosphamide; radiation therapy to the kidney region; and nephrectomy (partial or complete surgical removal of the kidney).

The researchers found that compared with CCS who did not receive kidney-damaging treatments, those who were treated with ifosfamide or cisplatin and those who underwent nephrectomy had lower GFR and higher glomerular dysfunction, and this condition persisted throughout the follow-up period. Further, CCS treated with high doses of cisplatin were found to have the highest rate of kidney function deterioration.

According to the study authors, these results suggest that glomerular function declined in the early years after cancer treatment and did not recover, and as it continues to deteriorate, these CCS are at an increased risk for premature chronic <u>renal failure</u>.

Provided by American Association for Cancer Research



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