

Medical Radiation Exposure in a Cohort of Children Diagnosed with Solid Tumors: Single Institution Study 1985-2015

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Abstract : Introduction: Pre-natal or early childhood exposure to the medical radiation used in diagnosis or treatment is an identified risk for childhood cancers but can be difficult to document. The author developed a family questionnaire/interview form to identify possible exposures. Aims: This retrospective study examines pre-natal and early childhood medical radiation exposure in a cohort of children diagnosed with a solid tumor including brain tumors from 1985-2015 at the Children's Hospital of Pittsburgh (CHP). The hospital is a tri-state regional referral center which treats about 150-180 new cases of cancer in children per year. About 70% are diagnosed with a solid tumor. Methods: Each consented family so far (approximately 50% of the cohort) has been interviewed in person or by the phone call. Medical staff and psycho-social staff referred patient families for the interview with the author. Results: Among the families interviewed to date at least one medical radiation exposure has been identified (pre-conception, pre-natal or early childhood) in over 70% of diagnosed children. These exposures have included pre-conception sinus or chest CT or X-ray in either parent, sinus CT or X-ray in the mother or diagnostic radiation of chest or abdomen in children. Conclusions: Exposures to medical radiation for a child later diagnosed with cancer may occur at several critical junctures. These exposures may well contribute to a 'perfect storm' in the still elusive causes of childhood cancer. The author plans to expand the study from 1975 to present to hopefully further document these junctures.

Keywords : pediatric, solid tumors, medical radiation, cancer

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