Fertility and hormone preservation and restoration for female children and adolescents receiving gonadotoxic cancer treatments: A systematic review.
Fertility and hormone preservation and restoration for female children and adolescents receiving gonadotoxic cancer treatments: A systematic review

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Background/Purpose: The purpose of this systematic review by the American Pediatric Surgical Cancer Committee was to summarize evidence from the current medical literature regarding fertility restoration and hormone replacement for female children and adolescents treated with gonadotoxic treatments.

Methods: Using PRISMA guidelines, questions were addressed by searching Medline, Cochrane, Embase Central and National clearing house databases using relevant search terms. Eligible studies included those that addressed ovarian tissue cryopreservation (OTC), oocyte harvest, ovarian transposition, and ovarian tissue autotransplantation for females under the age of 20. Four reviewers independently screened studies for eligibility, extracted data and assessed the risk of bias. Study outcomes were summarized in a narrative synthesis.

Results: Two thousand two hundred seventy-six studies were identified by database search and manual review and 2185 were eliminated based on defined exclusion criteria. Ninety-one studies served as the basis for the systematic review. There were 1019 patients who underwent OTC with ages ranging from 0.4 to 20.4 years old, with 298 under the age of 13. Twenty patients aged 13–20 years old underwent successful oocyte harvest. Thirty-seven children underwent ovarian transposition as a means of fertility preservation. Eighteen patients underwent auto-transplantation of thawed ovarian cortical tissue that was harvested before the age of 21 years resulting in 10 live births.

Conclusions: Clinically accepted and experimental fertility preservation options such as OTC, oocyte cryopreservation, and ovarian transposition are available to females aged 20 years and younger who are at risk for premature ovarian insufficiency and infertility due to gonadotoxic treatments. There is a large cohort of pediatric-aged patients, with a wide variety of diagnoses and treatments, who have undergone fertility preservation. Currently, fertility and hormone restoration experience for patients who were 20–years of age or younger at the time of fertility preservation remains limited.

Level of Evidence: IV.

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