

## **Systematic review of the gonadotoxicity and risk of infertility of soft tissue sarcoma chemotherapies in pre- and postpubertal females and males**

Marcel Steinmann<sup>1x</sup>, Anita Rietschin<sup>2x</sup>, Flavia Pagano<sup>2x</sup>, Tanya Karrer<sup>3</sup>, Attila Kollár<sup>4</sup>, Susanna Weidlinger<sup>2</sup>, Michael von Wolff<sup>2</sup>

<sup>1</sup>Division of Gynecological Endocrinology and Reproductive Medicine, Women's Hospital, Lucerne Cantonal Hospital, Lucerne, Switzerland

<sup>2</sup>Division of Gynecological Endocrinology and Reproductive Medicine, University Women's Hospital, Inselspital Bern, University of Bern, Switzerland

<sup>3</sup>Medical Library, University Library Bern, University of Bern, Switzerland

<sup>4</sup>Department of Medical Oncology, Inselspital Bern, University of Bern, Switzerland

<sup>x</sup>contributed equally

### **Abstract**

Increasing awareness of gonadotoxicity in cancer treatments and infertility risk is essential for counseling young cancer patients. While fertility preservation options are available in many countries, limited data on gonadotoxicity hinders recommendations, especially for soft tissue cancers. This review, part of the FertiTOX project ([www.fertitox.com](http://www.fertitox.com)), organized by FertiPROTEKT ([www.fertiprotekt.com](http://www.fertiprotekt.com)), aims to address this knowledge gap to improve fertility preservation guidance.

We performed a systematic literature search on gonadotoxicity in soft tissue sarcoma cancer treatments. Only patients without metastases or recurrent disease were considered. "Suspected infertility" was defined based on low ovarian reserve parameters, low inhibin B levels, high gonadotropin concentration, gonadal dysfunction, amenorrhea, oligomenorrhea, azoospermia, or oligozoospermia due to limited infertility data. The study quality was assessed using the Newcastle-Ottawa Scale.

The search yielded 3309 abstracts, with 138 undergoing full-text analysis. Eight studies on soft tissue sarcomas were included. Suspected infertility was observed in 20 of 28 females (71.4%, range 0-100%) and 38 of 63 males (60.3%, range 34.8-100%) with soft tissue sarcomas. Six of the eight studies received high-quality scores on the Newcastle-Ottawa Scale, while two received a fair score.

Our data suggest a high risk of infertility from chemotherapy in pre- and postpubertal soft tissue sarcomas survivors. This underscores the importance of considering fertility preservation measures when counseling these patients.