

## **Abstarct:**

Chemotherapy, as the primary treatment method for many types of cancer, is associated with a number of side effects, including a potential negative impact on male fertility. The action of chemotherapy interferes with the process of spermatogenesis, a key part of male reproduction, every part of which is highly sensitive to negative influences that can suspend it or permanently damage it. The most sensitive to the effects of chemotherapy are the active mitotic and meiotic phases, during which spermatogenic cells divide and differentiate. These stages are affected because of the high activity of cell division and the increased need for cell growth, a common aspect shared with the cancer cells against which cytostatics are primarily directed. However, chemotherapeutic agents can also affect the function of Sertoli cells and Leydig cells, which are involved in the regulation of spermatogenesis. Infertility observed after chemotherapy treatment can thus be the result of both direct damage to germ cells and indirect damage to endocrine and paracrine control of somatic cells. Thanks to early diagnosis and advances in treatment technologies, the number of successfully cured cancer patients continues to increase. Nevertheless, the protection of male fertility during oncological treatment remains a current topic. The main content of this bachelor's thesis is the discussion of the effect of chemotherapy on male fertility, including the presentation of various types of cytostatics and the mechanism of their effect on reproduction, including the presentation of ways how to protect male fertility during treatment. The work also includes research areas that seem to be the way to reduce the gonadotoxic effect of treatment and to increase the effectiveness of chemotherapy as such.

**Keywords:** chemotherapy, male fertility, cancer treatment, protection of fertility