**Potential for Less Invasive Alternatives to Chemo- or Radiation Therapy.**

**What is this research about?**

Cancer is a major health concern globally. Reproductive cancers, namely ovarian and prostate, are of particular threat as they are second only to lung cancer with the highest number of new cases annually. In the last 30 years there has been little change in the survival rates of metastatic cancer patients. The toxic effects of chemotherapy and radiation treatments have a profound impact on one’s chance of survival. Recent research has focused on improved methods of cancer treatment that are less invasive than those treatments.

Receptor-targeted therapy kills cancer cells. It utilizes the properties of specific substances that bind to receptors on specific cells. This method if successful and could limit the need for chemotherapy or radiation treatments, thus avoiding their harmful side effects. This paper examines receptor-targeted therapy’s potential effects within the reproductive tract of sheep as a model for women.

**How can you use this research?**

The present observations show potential of the drugs tested for targeted cancer therapy. Researchers can use this study to focus their cancer research for patients who want to preserve their fertility.

**What you need to know:**

The potential for less invasive cancer treatments presents the possibly for a great leap in the fight against cancer. The violent side effects of radiation and chemotherapy could be significantly reduced. Receptor-targeted therapy shows promise in the treatment of reproductive tissue cancers in both animals and human beings. Ensuing research will potentially encourage new knowledge and initiatives to further our understanding of how this therapy works.

This study supports the potential of receptor-targeted therapy as a save treatment in reproductive aged patients; there is no evidence of long term deleterious effects to ovulation processes. With further research, the potential of preserving the fertility of cancer patients while using targeted receptor therapy methods is promising. In addition, with the hormone suppression observed, higher doses of the drugs could potentially be used for contraception or hormonal ablation of ovarian structures. **Cancer patients** can use this study to learn about cancer therapy developments and alternatives to radiation.
What did the researchers do?

It has been observed that reproductive cancer tissues naturally have a stronger expression of a particular hormone receptor relative to other tissues. Recent studies in small laboratory rodents have demonstrated some positive findings with two particular hormone receptors, namely the gonadotropin and gonadotropin-releasing hormone receptors. A substantial decrease in tumour size was recorded after targeted receptor therapy was applied to reproductive cancer tissue in vivo and in vitro. However, the hormone receptor that is targeted is found on both cancer cells and on normally functioning cells.

This study employed a large animal model (female sheep), due to their similar body mass and reproductive physiology to humans. The researchers used the proposed treatment on healthy ewes to measure the impact on their healthy organs and normal reproductive cycles. The goal was to assess the damage, if any, the applied dosage of the drugs had on the ewes’ reproductive tracts.

What did the researchers find?

The therapy had a minimal impact on the ovarian cycles in ewes and thus their ovulation rate post-treatment remained unchanged. Furthermore, their fertility was not effected in the long term. This study also showed that the treatment caused a moderate decrease in the production of hormones that trigger ovulation.

Keywords:

Cancer, reproductive tissue cancer, receptor-targeted therapy, sheep

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