Drug Delivery Device for Ovarian Cancer

Researchers at the University of South Florida have developed a non-invasive drug delivery device to treat ovarian cancer.

Ovarian cancer is the most deadly gynecologic malignancy in the United States; approximately 22,530 new cases were reported in the United States in 2019 alone. Worldwide, an estimated 205,000 women are diagnosed with the disease each year. Most cases of ovarian cancer are advanced by the time the disease is diagnosed, so those affected often have a poor prognosis. Between 2009 and 2015, the percentage of women who survived for five years after diagnosis was only 47.6%. To treat this disease, numerous medications and regimens have been tested, but many of these therapies remain in clinical stages. As such, approved therapeutic treatments continue to present major challenges to doctors and researchers alike. Current dosage levels have been found to be insufficient and often lead to disease recurrence. Increasing systemic dosage has been hypothesized as an effective treatment; however, this approach increases the cell death of healthy somatic cells due to increased systemic toxicity.

Our researchers have developed a device with the ability to deliver precise and effective dosage quantities to a targeted site through direct vaginal delivery. This allows for accurate dosage delivery to identified cancerous cells in the ovaries as well as anywhere in the peritoneal cavity. The device consists of three components: a chamber, a drug tubing releaser, and a drug plunger. This novel device has the potential to be used for the treatment of ovarian cancer, but it may be used to treat other disease of the peritoneal cavity as well.

ADVANTAGES:
- Protects healthy cells from exposure to toxic drugs
- Targeted drug delivery effectively supplies safe dosage to site of disease
- Improves post-treatment prognosis and may prevent cancer recurrence

Non-Invasive Drug Delivery Device for Ovarian Cancer Treatment

Figure 1: Inserting Chamber and Drug Tubing Releaser

Figure 2: Inserting Chamber, Drug Tubing Releaser and Drug Plunger

The Non-Invasive Drug Delivery Device Consists of Three Component Parts

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