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The use of high dose estrogens for the treatment of breast cancer

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Efficacy of estrogens for treatment of advanced breast cancer was first described by Haddow in 1944. Results of Haddow were a paradox, as breast cancer was considered to be dependent on estrogens for growth. In the following years research on high dose estrogens (HDEs) was continued, making estrogens the standard of care in postmenopausal women with advanced breast cancer. In the 1970s, estrogen therapy was replaced by tamoxifen. Although not more effective than HDEs, tamoxifen was less toxic and therefore considered to be the preferred agent. In the 1990s, estrogen therapy has gained new interest as clinical studies showed anti-tumor efficacy with different estrogens (DES, EE, E2) in heavily pre-treated postmenopausal women in an estrogen deprived setting. The fact that estrogens can be used to treat breast cancer has almost been forgotten. Therefore, a review paper has been published, summarizing all literature data on this topic. The success of estrogen therapy is dependent on the menopausal status and how long the patient has been deprived of estrogens (gap hypothesis). Research on mechanism of action has shown that apoptosis induced by estrogens is regulated via the estrogen receptor. HDEs have a negative safety reputation, especially of having side effects related to the cardiovascular system. The fetal estrogen estetrol might be a new treatment option as estetrol has less interference with liver function as compared to other estrogens. A proof of concept study is ongoing in Germany to assess safety and anti tumor efficacy of estetrol in postmenopausal women with advanced ER+ breast cancer.

Biography

Carole Verhoeven is a PhD holder. She is the Chief Scientific Officer (CSO) at Pantarhei Oncology BV, the company developing estetrol for the treatment of breast and prostate cancer. She has studied Chemistry at the Catholic University of Nijmegen (1989) and received her PhD on the metabolism of structurally related synthetic steroidal hormones in 2001 from the University of Groningen. From 1994-2011 she has been working for Organon/Schering-Plough/MSD in several positions in preclinical and clinical development. She has published 24 scientific papers in peer-reviewed journals.

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