Abstract

The thesis deals with questions about levels of estrogen and progesteron receptors (ER and PR) in normal breast tissue and in tumorous tissue and explains their changes. The aim of our effort was to find the publications which deal with possibilities of false positivity or negativity in a breast cancer and clarify the time period after which we can expect relevant results of the receptor levels after contraception therapy or hormonal substitution therapy and which concentration of hormones we can expect in serum.

First we listed contraception therapy and hormonal therapy. We focused on physiological concentrations of estradiol and progesterone in serum and their potential affection by contraception and hormonal substitution therapy. We found that most of contraceptives contain now such dose of ethinylestradiol to reach such concentration in the serum which are nearly physiological. In postmenopauzal women the estradiol levels decreases in comparison with premenopausal women. The doses of ethinylestradiol during substitution therapy are essentially higher than during contraception therapy.

Subsequently we searched for the releationship between levels of ER and PR and their potential affection by contraception or hormonal substituonal therapy. As the Czech literature does not include this questions - therefore we drew the information especially from foreign studies. In one of these studies we found out that there is a significant increase of PR level after estrogen therapy in postmenopauzal women. Other study proved that the relative number of receptors ERα, ERβ and PR positive cells decreased in presence of steroid hormones after 21 days of cultivation. Nevertheless, authors of this study did not deal with a question within how many days the concentration stabilizes in normal after removal of this hormones in order to avoid the false positive results after hormonal therapy. Regarding to the fact that this attempts were performed in vitro on MCF-7 cells we can not claim the reliability of these results and possible usage in practice. Furthermore we found out that there is an inverse proportion between the change of estrogen concentration and ER that could be used for corrections of measured ER values. Tibolon increased the

expression both PR A and PR B without effect on ERα and ERβ in macaques breast in vivo.