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Influence of the age and other factors on the cytosol concentration of steroid receptors in breast cancer

Diploma assay

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In our diploma thesis we analyzed statistically the cytosolic results of estrogen and progesterone receptors (ER a PR) of patients with the breast cancer diagnosis, which we got from the laboratory in Pardubice and Hradec Králové.

We compared ER and PR concentrations of premenopausal and postmenopausal patients with the use of different methods of evaluation of age dependence of ER and PR. We used predominantly the methods that exploited the calculations of great number of medians of the neighbouring – mutually overlapping groups of patients. First we marshalled the results in the (programme Excel) table according to the age of patients and we constituted the groups for calculation of the medians from the patients in the mutual neighbourhood. These groups were constituted using the similarity of the patients' age or – on the contrary – by such manner which uses the same number of patients in the groups for medias – the age of which was also similar – but not constantly. The age differences in these groups were greater in such age in which there was the small frequency of arising of such tumors.

In each of our graphs we noticed the identical age increases or decreases and also the differences of patients from different towns and we compared these results with the literature.

The aim of our thesis was also to prove the consistence of our results with foreign studies and also with some of bachelor and diploma thesis of our workplace which concerned the increase of ER with the age. The next aim was – to clarify the age dependence of PR. This dependence wasn't clearly and consistently demonstrated in several studies.

We also referred the risk in the use of rigid age intervals, which was found as the suitable in the works of other authors.

It's important to say that there are some authors who don't respect for example the importance of the age after the menopause for the regulation of ER and PR. This fact can lead to cover incorrectly some important changes of ER and PR concentrations. It can lead to the incorrect decision – which kind of therapy to choose.

Our method (that exploits the great number of medians of the neighbouring – mutually overlapping groups of patients) can contribute to the more correct detection of hormonal changes of receptor concentrations and therefore to the more correct decision – which therapy to use.

The method of study of the age dependence of ER and PR, which we used, could also detect some abnormalities in the statistical set of patients. These abnormalities can be caused e.g. by some differences in the use of the hormonal substitution therapy of the menopause disorders between regions. For instance the age dependence of ER and also PR was very non-characteristic in case of patients from the hospital in Náchod.

The correctness of results depends also on the size of the statistical set – on the number of examined patients.

Often, the small statistical sets don't bring any reliable results because they include smaller amount of patients in the age interval in interest.