2. Summary

Tereza Hanáková

Influence of the age and other factors on the estrogen and progesteron receptor ratio (ER/PR) in breast cancer

Rigorous thesis

Charles university in Prague, Faculty of Pharmacy in Hradec Králové

Pharmacy

In this rigorous thesis we dealt with ER/PR ratio of patiets in the breast cancer and we tried to point out its importance for making the diagnostics more accurate.

We compared the curves in the graphs of hospitals in Pardubice, Náchod and Hradec Králové by the help of methods that exploited medians of the neighbouring – mutually overlapping groups of patients. In these graphs we were noticing the similar or on the contrary different features and also abnormalities and we tried to explain the reason of these events. It is important to define the optimal ER/PR value and determine the boundary of the dangerously low or high ER/PR ratio, because the extreme increase of this quotient as well as too low of ER/PR ratio make the prognosis worse.

The ER/PR quotient should represent the comming of the menopause more accuratelly than ER alone, because during low estradiol production not only concentration of ER, but also the extent of the whole ER/PR quotient rises, but in the addition, this ER/PR quotient rises together with the decrease of PR in the denominator. On the contrary, the aplication of estradiol or its intra-tumorous production leads to the artificial decrease of ER and simultaneous PR increase and the value of the whole ER/PR quotient is going down by this manner.

It is important to think about the influence of various factors on ER/PR quotient – it can be connected with the treatment by the hormonal substitution therapy of the menopausal disorders or the administration of the hormonal contraception before diagnosis of the tumour. In this connection we received the data from the database of VFN in Prague to find out some information about the hormonal substitution therapy prescription in case of postmenopausal patiens and to motivate the future interesting persons in this problematics. In addition to the carrying data of concentrations of ER and PR from each patient is important to search

intensively for the facts concerning the administration of hormonal treatment before the diagnosis of tumour.

Some particularity in our graphs could be cleared up by this.

By the help of the logarithmic sum (ER*PR) we found out, whether tumours in certain age appeared to be hormone-dependent or not. Because the estradiol production reduces ER and on the other side increases PR proportionally, than ER*PR will stay still the same. But during ER*PR decreasing, ER and also PR are insufficiently produced, and that is why estrogen-dependent tumours stop to arise.

Because of certain interlab differences we would like to point out the importance of the determination of interval of ER/PR ratio by each lab (when ER/PR ratio is dengerously high). It was seen for instance as a considerable increasing of ER/PR after age of 55 by hospital in Hradec Králové compared to less considerable break by hospital in Pardubice.

Many problems haven´t been solved yet, because it was only step one of this problematics. If for example menopausa gets the tumour production strongly estradiol-dependent lower (strongly ER and PR positive) than ER/PR ratio is counted from abnormal statistic subgroup of this age. The estradiol influence on everage tumour can´t be accurately discussed.