

The study of relationship between ADC value and maximal diameter of the breast cancer with Ki-67 expression during neoadjuvant chemotherapy

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Purpose

Study the ADC value and the maximal diameter and their changes of breast cancer before and after neoadjuvant chemotherapy, to determine the relationship with different expression level of ki-67.

Methods

48 patients with breast cancer confirmed by biopsy underwent MR DWI and enhanced scan before and after 4 cycles neoadjuvant chemotherapy. The ADC value and the maximum diameter of the cancer foci were measured before and after chemotherapy, and the rate of their changes $\Delta ADC\%$ and $\Delta D\%$ were calculated. Using different Ki-67 index level, all the foci were divided into three groups: group A with Ki-67 <20%, group B with Ki-67 between 20% and 60%, and group C with Ki-67 >60%. Using One-Way ANOVA to compare the ADC values, $\Delta ADC\%$ and $\Delta D\%$ of the three groups before and after chemotherapy, determine whether there were differences.

Results

The ADC value of group A was higher than that of group B and C before chemotherapy, the difference was statistically significant ($P < 0.05$); while the ADC value of group C was higher than that of group A and B, the differences were statistically significance ($P < 0.001$); the ADC change rate ($\Delta ADC\%$) of group C was greater than group A and B, the differences were significant ($P < 0.001$). The maximum diameter of group A was lower than that of group B and C before and after chemotherapy, and the differences were statistically significant ($P < 0.05$); the change rate of the maximum diameter in group B was less than group A ($P < 0.001$) and C ($P < 0.05$), and the differences were statistically significant.

Conclusion

The ADC value and the maximal diameter of breast cancer differed with different expression levels of Ki-67 index before and after neoadjuvant chemotherapy, and their response to neoadjuvant chemotherapy varied as well.

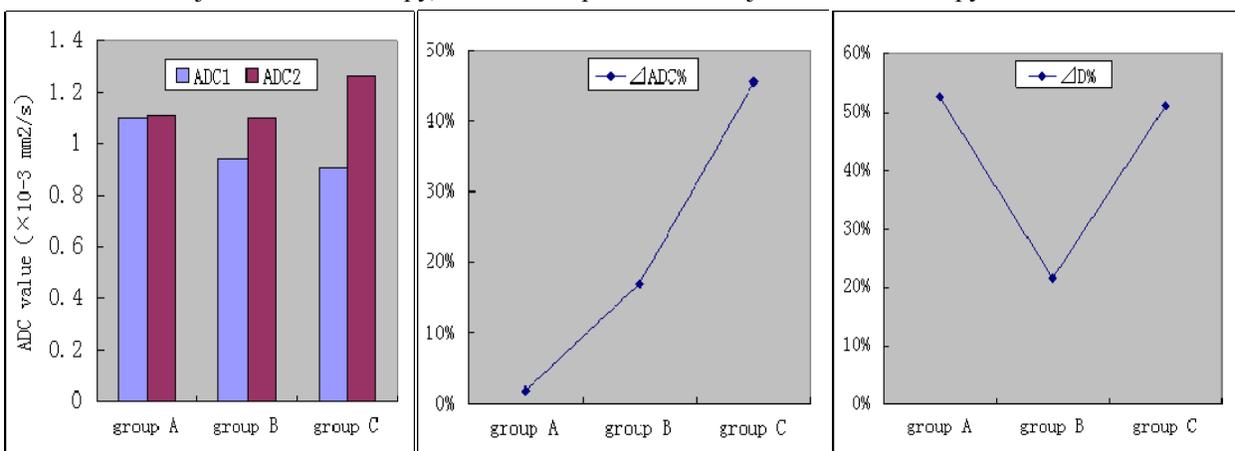


Figure1, The ADC values of the three group with column diagram.

Figure2, The relationship of $\Delta ADC\%$ with ki-67.

Figure3, The relationship of the maximal diameter with ki-67.