THERMORADIATION THERAPY FOR ADVANCED OROPHARYNGEAL CANCER

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Introduction

Results of radiation therapy (RT) alone or with local hyperthermia (TRT) of 75 patients with oropharyngeal carcinoma are presented.

Materials and Methods

Patients were divided on two groups. Forty one patients received RT alone (group I), 34 patients received TRT (group II). Patients from group I received conventional RT: 2Gy 5 days per week to total dose 56-60Gy. Patients from group II at the beginning of RT received 4Gy 3 times per week to total dose 20Gy, afterwards 2Gy 5 times per week to total dose 52-56Gy. Break in RT was done for patients from both groups after total dose 30 Gy. Local hyperthermia in group II was associated with 4Gy fractions of RT from second to fifth 4 Gy fractions. Radiofrequency local hyperthermia (RF-LHT) was realized at "Supertherm EP40" unit (40.68 MHz) with capacitive electrodes. Temperature of heating was controlled with fiber optic needle probes with 2-3 sensor elements each probes. Temperature in center of tumor was from 41.5 to 43,0 ^{o}C and at periphery of tumor from 40 to 41.5 ^{o}C.

Results

Complete response (CR) and partial response (PR) of tumor were obtained in group I in 13 (32%) and 20 (49%) cases. CR and PR in group II were registered in 22 (65%) and 9 (27%) patients correspondingly. Differences between groups for both values were statistically significant ($p< 0,01$). Three and five-year overall survival of patients after RT was 19% and 9% and after TRT – 41% and 19% correspondingly. Significant differences ($p<0,05$) between two groups obtained only for three-year follow-up. Median survival time of patients after RT and TRT was 1.6±0,2 and 2.4±0,3 years correspondingly ($p< 0.05$). Three and five-year recurrence-free survival after RT was 4,9% and 3,3% and after TRT 21,6% and 8,6% accordingly. Significant differences ($p<0.05$) between two groups also obtained only for three-year follow-up. Median recurrence-free survival time after RT and TRT was 1.0 ± 0.1 and 1.8 ± 0.2 years correspondingly ($p<0.01$).

Conclusion

Using of RF-LHT with RT significantly improves tumor response and three-year overall and recurrence-free survival of patients with oropharyngeal carcinomas. At the same time TRT increases local acute reactions and late complications rate. That is why very important further investigations on basis of modern achievements of clinical radio- and thermobiology for decreasing side effects of TRT on normal tissues.