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Retrospective comparison between intensity modulated radiation therapy (IMRT) alone and low dose brachytherapy followed by intensity modulated radiation therapy (COMPO) in treatment of low and intermediate risk prostate cancer patients

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Objective: The main purpose of this study is to compare the biochemical relapse free survival and the overall survival in both low and intermediate risk prostate cancer patients treated with either intensity modulated radiation therapy (IMRT) alone vs., low dose brachytherapy followed by intensity modulated radiation therapy (COMPO).

Material & Methods: 100 low and 215 intermediate risk prostate cancer patients (total of 315), treated in university hospital and cancer institute in the period between 2002 and 2007 using either IMRT alone (165 patient) or low dose brachytherapy (using permanent iodine-125 implantation) followed by IMRT (150 patients). The data of these patients were collected and analyzed to detect any difference in the biochemical relapse free survival and overall survival between the groups.

Results: The median follow up of the patients was 7 years. Analysis of the collected data revealed statistically significant improvement in the biochemical relapse free survival in the intermediate risk group treated with COMPO (low dose brachtherapy followed by IMRT) when compared with the intermediate risk group treated with IMRT alone (P=0.004). However there was no statistically significant difference in the biochemical relapse free survival in the low risk group (p=0.08). Also there was no difference in the overall survival in either low or intermediate risk groups.

Conclusion: The use of COMPO treatment (low dose brachytherapy followed by intensity modulated radiation therapy) in the intermediate risk prostate cancer patients is associated with significant improvement in the biochemical relapse free survival when compared with the IMRT alone.

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Anticarcinogenic effect of coadministration of α-β unsaturated compounds and quercetin

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The effect of co-administration of α-β unsaturated compounds derivatives of benzoic acid and the flavonoid Quercetin, were evaluated in a variety of established human cancer cell lines. The synergic effect of these two chemicals showed anti-proliferative activity in cancer liver cells of 90% and in cancer cervical cells of 60% at 48 h post-treatment. Additionally, significant events of apoptosis were observed in 90% of the cell population, when benzoic acid and quercetin were administered together. Independent treatments, quercetin or α-β unsaturated compounds decrease the migratory ability of HepG2, HuH7 and HeLa, however the coadministration of both, exerted a higher effect. It is suggested by in silico studies of α- β unsaturated compounds, that through 1,4-addition reactions Michael type, they can selectively react with glutathione (GSH). High levels of GSH participate as a defence mechanism characteristic of cancer cells, thereby, inhibiting free radical induced cell death. Summarizing the co-administration of these compounds induce programmed cell death, probably by disrupting the cellular redox homeostasis, so further studies of the effect of independent or co-administration of these compounds, will give us the best way to use them as chemotherapeutic agents.

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