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Title of Thesis: Role of *NAT-2* Gene and Hormone Receptors in the Genesis of Urinary Bladder Carcinoma

ABSTRACT

Background

A few earlier investigations have demonstrated the biologic and therapeutic significance of androgen, estrogen, progesterone receptors and N-Acetyltransferase-2 gene in transitional cell carcinoma (TCC) of urinary bladder. The aim of the study was to examine some of the hormonal receptors (AR, ER and PR) and NAT-2 gene expression and their relationship to the progression of tumor.

Methods

Total numbers of 165 histopathologically confirmed cases of Transitional cell carcinoma (TCC) of urinary bladder and 100 cases of control were taken. The cases were classified according to the WHO grading system by experienced pathologists in three classes: Grade I, Grade II and Grade III. Immunohistochemistry staining was used to stain the

cells for nuclear (AR, PR, ER) and Cytoplasmic (NAT-2) markers. In the stained cell spots, positive cells were observed under light microscope.

Results

The TCCs were histologically graded into grade I (n=50), grade II (n=64) and grade III (n=51). The expression of AR, ER, PR and NAT-2 was seen in 12.12%, 10.9%, 0% and 43.63% cases respectively. TCCs positive cases for tumor markers were divided according to the sex and age. The expression of AR was significantly higher in males with the age group ≥ 50 years as compared to the age group less than 50 years ($p < 0.05$). But, expression of ER was significantly higher in males and females of the age group ≥ 50 years as compared to the age group less than 50 years ($p < 0.05$). PR, however, was totally absent in either group of both sexes. The NAT-2 expression was found in cytoplasm of the tumor cell but not in the normal transitional epithelium. In female positivity of NAT-2 gene were significantly higher in ≥ 50 years as compared to < 50 years. Loss of heterozygosity (LOH) was observed in tumor tissue (10.3%) in NAT-2 gene by RFLP.

Conclusion

Expression pattern of tumor markers showed significant relation to the increasing tumor grade, age and sex. The expression pattern of tumor markers suggests that the hormonal blocker may have an immense therapeutic value in the treatment of transitional cell carcinoma of urinary bladder.