**Selective Anti-Proliferative Effect of Alpha 1 Adrenoceptor Antagonists on Prostate Cancer Cells**

**Introduction and Objective**: Alpha-1 adrenoceptor antagonist, doxazosin and terazosin were able to induce prostate cancer cell apoptosis, inhibit cell growth and decrease the incidence of prostate cancer while tamsulosin was unable to do so. In 2008, Kanda et al. reported that naftopidil, alpha-1D adrenoceptor antagonist, inhibited growth of human prostate cancer cells by arresting the G1 cell cycle using two human prostate cancer cell lines. We subsequently decided to further investigate the effect of naftopidil on humans.
**Materials and Methods:** Prostatic tissues at surgery were collected from men who received naftopidil (N=20) or tamsulosin (N=20) for more than 1 year. Tissues from men not prescribed for alpha 1 adrenoceptor antagonists were also collected at surgery (N=20). Degree of cell cycle arrest and apoptosis were analyzed by immunohistochemistry by means of high expression of p21 and low expression of bcl2, respectively. Non-specific staining was checked using antibody which contain large amount of target protein.
**Results:** The expression of p21 was very low in normal or non-cancerous portions (0-1%). In cancerous portion, the expression rate was higher (1-7%), and it was especially high in men on naftopidil (7%), as compared with those on tamsulosin (4%) or non-users (1%). The bcl2 expression in cancerous portion was lower for men on naftopidil (5%) than men on tamsulosin and non-users (10% each). Interestingly, bcl2 expression in non-cancerous portion was higher for men on naftopidil (80%) than men on tamsulosin and non-users (60% each).
**Conclusions:** Considering the inhibitory effect of p21 on cell cycle, the high expression of p21 in men on naftopidil in cancerous portion suggests suppressive activity of naftopidil for cell proliferation. Increased apoptosis as indicated by bcl2 expression in cancerous portion in men on naftopidil also suggests suppression of cancer cell growth by the agent. Meanwhile, in non-cancerous and normal position, cell growth was not suppressed. Naftopidil seems to help the biological defense by suppressing cell cycle and induce apoptosis only in cancer cells.