SURVIVAL FACTORS IN CORPORAL CAVERNOSAL CELLS FOLLOWING RADICAL PROSTATECTOMY: A CANINE MODEL

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Radical prostatectomy (RP) involves injury around the neurovascular bundles that may involve a neuropraxia-induced apoptosis leading to erectile dysfunction (ED). We developed a canine model to assess levels of anti-apoptotic protein, Akt and the death promoter, pBAD in cavernosal plasma following RP. We hypothesize that these proteins may reflect the degree of neuropraxia following RP. Canines underwent simulated RP. Blood plasma was extracted from the cavernosal and systemic veins at 3-time points (0.5 hr pre-RP, 0.5 hr and 1 hr post-RP). Proteins were subjected to Western blot analysis. Results were quantified as Intergraded Optical Densitometric units. Akt in the cavernous significantly increased during the pre-RP to 0.5 hr post-RP period, and returned to baseline levels at 1 hr post-RP. Akt levels remained unaffected in the systemic plasma. pBAD levels were significantly elevated only at 1 hr post-RP. eNOS levels correlated with Akt and were slightly elevated at 0.5 hr post-RP. These results demonstrate that RP induces apoptosis with up-regulation of AKT and eNOS with subsequent elevation pBAD. These protein markers reflect constant apoptosis and can quantify the extent of neuropraxia following RP.