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CANNABINOID RECEPTOR TYPE 2 AGONIST AMELIORATES CAPSAICIN-INDUCED PROSTATITIS IN THE RATS

Hypothesis / aims of study
Inflammation of the prostate has been shown to associate with lower urinary tract symptoms. However, effective treatments for prostatic inflammation are still lacking. It is now known that endocannabinoids are important modulators of tissue inflammation and pain perception. And manipulation of cannabinoid system had been shown to reduce inflammation and lessen pain perception in some experimental inflammatory conditions. This study is the first one to investigate the effects of a cannabinoid receptor type 2 (CB2) agonist on capsaicin-induced prostatitis in the rats.

Study design, materials and methods
In adult male Sprague-Dawley rats prostate inflammation was induced by intra-prostatic capsaicin injection. Daily i.p. injection of a CB2 agonist, AM1241 (Sigma; 1 mg/kg/day) for 3 days was given before intra-prostatic capsaicin injection. Thirty minutes after capsaicin injection the animals are sacrificed and the prostate re-moved. The experiment consisted of 4 six-animal groups: Group 1 received i.p. injection of vehicle for AM1241 and prostate injection of vehicle for capsaicin; Group 2 received i.p. injection of vehicle for AM1241 and prostate injection of capsaicin; Group 3 received i.p. injection of AM1241 and prostate injection of capsaicin; Group 4 i.p. injection of vehicle for AM1241 and prostate injection of vehicle for capsaicin. The expression of cannabinoid receptor type 1(CB1) and 2(CB2), fatty amide hydrolase (FAAH) and cyclooxygenase 2(COX-2) in each group were examined with RT-PCR for mRNA and western blotting for protein expression.

Results
Capsaicin injection induced an inflammatory reaction with infiltration of leukocytes in the prostates. Capsaicin injection increased CB2 expression, while the expression of CB1 was not changed. Expression of FAAH, an endocannabinoid degradation enzyme, was reduced following capsaicin injection. Expression of COX-2 was enhanced following capsaicin injection. Pre-treatment of AM1241 significantly reduced the expression of COX-2 mRNA and protein. Histological examination also showed a reduced inflammatory response to capsaicin following AM1241 pre-treatment.

Interpretation of results
The present study clearly demonstrated that cannabinoid receptor type 2 agonist may ameliorate capsaicin-induced prostatitis.

Concluding message
Cannabinoid receptor type 2 can be a promising therapeutic target in treating non-bacterial prostatitis.

Disclosures
Funding: Taipei Veterans General Hospital **Clinical Trial:** No **Subjects:** ANIMAL **Species:** Rat **Ethics Committee:** guidelines for care and use of laboratory animals were followed