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Title (type in CAPITAL LETTERS)	PERMANENT SELECTIVE STIMULATION OF THE URETHRAL BRANCH OF THE PUDENDAL NERVE: INFLUENCE OF STIMULATION PATTERN ON THE URETHRAL SPHINCTER PRESSURE

AIMS OF STUDY:

Permanent selective neurostimulation of the urethral branch of the pudendal nerve is possible. We investigated the influence of unilateral and alternating permanent stimulation on the urethral sphincter.

METHODS:

We performed in a total of 6 male foxhounds direct, conventional neurostimulation of the right and left urethral branch of the pudendal nerve to evaluate current strength of the maximum sphincter pressure. The current strength with the highest total of right and left pressures was chosen for alternating permanent stimulation. The stimulations were performed in an alternating pattern left and right each over an interval of 15 seconds. Initial and final pressure of the urethral sphincter were recorded during stimulation over a total period of 20 minutes. During unilateral stimulation with current strength of the maximum sphincter pressure, the time was recorded, in which the sphincter pressure was reduced to half of the initial pressure.

RESULTS:

Mean current strength of alternating permanent neurostimulation was 2.3 mA (1.6 mA - 3.0 mA). During this stimulation pattern, initial sphincter pressure was reduced by mean 37.3% (5.4% - 80.8%) and final sphincter pressure was reduced on average by 33.2% (9.1% - 65.6%). Mean current strength of unilateral permanent stimulation was 2.0 mA (0.9 mA - 3.0 mA). The initial sphincter pressure was reduced by 50% in an average of 3 minutes (0.42 min. - 12.1 min.). In both series there were no significant differences between sides.

CONCLUSIONS:

Permanent selective neurostimulation of the urethral branch of the pudendal nerve results in sphincter fatigue. Neural management of permanent stimulation pattern can be optimized using an alternating stimulation technique. Using this kind of stimulation, sphincter fatigue may be reduced while continence may be achieved.

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