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THE EFFECT OF DISTAL COLON DISTENSION ON MICTURITION REFLEX IN URETHANE ANESTHETIZED RATS

Aims of Study The voiding dysfunction is often accompanied by the motility disorder of the gastrointestinal tract such as constipation or abdominal distension. In this study we examined the effects of the distension of the distal colon on the micturition reflex in the anesthetized rat

Methods The experiments were performed on 20 female SD rats (250-350 gram) anesthetized with subcutaneous urethane(1.25g/kg) The bladder was filled via the recording catheter by incremental volumes of warmed(37'C) saline using Havard-pump until spontaneous bladder contraction occurred (usually 0 5-1.0ml). Changes of intravesical pressure was measured by a conventional pressure transducer(Grass model 7D Polygraph) For the distension of distal colon, a catheter ending in a compliant balloon was inserted through the anus upto the distal colon (5 cm. from the anus). The catheter was connected to a 1ml syringe filled with 0.9% NaCl at 37'C and colon distension were done by inflating the balloon with saline (0 4, 0 6, 0 8, 1 ml respectively) The change of the micturition reflex after intraarterial injection of acetylcholine, phenylephrine, ATP were evaluated at the state of maximal colon distension (1 ml of ballooning)

Results The frequency and amplitude of micturition reflex were decreased significantly during incremental distension of the colon. The voiding reflex that had been inhibited by distal colon distension was restored by injections of acetylcholine temporarily

Distension(ml)	Baseline		0 4		0 6		0 8		1 0	
	Freq	Amp	Freq	Amp	Freq	Amp	Freq	Amp	Freq	Amp
mean	11 35	28 8	9 97	24 1	7 89*	22 8	6 94*	19 7*	5 92*	18 3*

Freq frequency (/10 min) Amp amplitude (cmH2O)

* significant difference from baseline value

Conclusions: The micturition reflex was inhibited by distension of the distal colon and restored by intraarterial injection of acetylcholine This result indicate that the inhibition of the micturition reflex caused by distension of the distal colon is related to the parasympathetic nerve activity and, also that the constipation or abdominal distension due to intestinal motility disorder may be associated with voiding dysfunction clinically