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Title (type in CAPITAL LETTERS, leave one blank line before the text):

PROTECTIVE EFFECT OF DIET HIGH IN VITAMIN E ON BLADDER FUNCTION SECONDARY TO PARTIAL OUTLET OBSTRUCTION

Aims of Study: Vitamin E is a widely used dietary supplement and an anti-oxidant. The specific aim of this study was to determine if diet high in vitamin E in rabbits reduced either the hypertrophic response of the bladder to partial outlet obstruction or the accompanying contractile dysfunction.

Methods: Twenty-four male New Zealand rabbits (3 to 5 kg.) were randomly separated into 4 groups of 6 rabbits each. Each rabbit in-group 1 and 2 received diet high in vitamin E for 4 weeks, while each rabbits in-group 3 and 4 received normal diet. Four weeks later, each rabbit in-groups 2 and 4 underwent partial outlet obstruction of the bladder as previously described (1,2). At three weeks of obstruction (obst), each rabbit was anesthetized and the bladders excised. In-vitro contractility studies were performed and the balance of the bladder frozen and analyzed for MDA.

Results: 1) Diet high in vitamin E significantly reduced the effect of partial outlet obstruction on the bladder mass. Obstructed bladders of rabbit on normal diet weighed almost 8 times greater then control, while the obstructed bladders of rabbits on diet high in vitamin E weighed only 2.5 times greater then control.

2) Diet high in vitamin E resulted in significant protective effect on the maximal contractile response and on the rate of maximal contractile response to field stimulation (FS = 32 HZ), Adenosine Tri-phosphate (ATP), carbachol and KCl. See table below.

	FS 32 Hz		ATP		Carbachol		KCl	
% Decline in:	Obst. N D	Obst. E D*	Obst. N D	Obst. E D*	Obst. N D	Obst. E D *	Obst. N D	Obst. E D *
Max. Tension	55	17	42	9	38	3	35	0
Rate of Tension Generation	61	36	61	35	57	4	41	33

N D = Normal Diet; E D High E diet; * = Compared to respective normal diet

3) Obstruction stimulated a significant increase in MDA content in the microsomal particulate fraction. Diet high in vitamin E significantly reduced the basal levels of Malondialdehyde (MDA) in both microsomes and mitochondria by 60%. This reduction was seen in control and obstructed group on high E diet. And more importantly MDA levels in control and obstructed rabbits on high vitamin E diet were identical.

Conclusion: These results clearly demonstrate that diet high in vitamin E reduced the hypertrophic response of a partially obstructed bladder and protracted the bladder from contractile dysfunctions induced by the partial outlet obstruction. This protection in part is provided by the reduction in the level of lipid peroxidation.

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