

Enhanced bladder cholinergic and stretch-induced relaxation responses in an aged model of perimenopause

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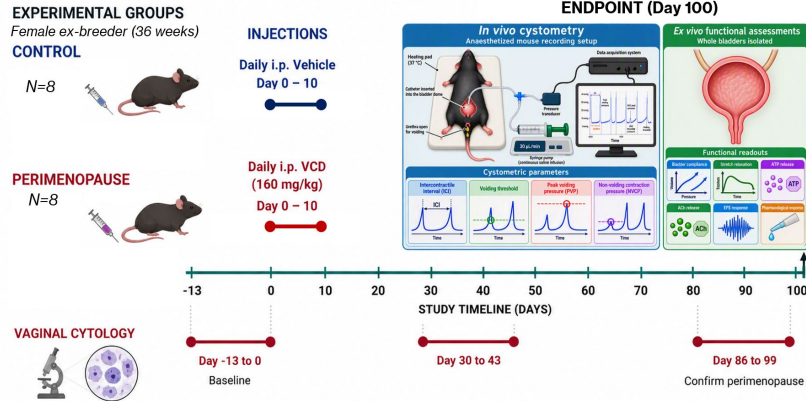
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Aim

The 4-vinylcyclohexene diepoxide (VCD) model of ovarian failure uses young adult mice, yet women enter perimenopause in midlife.

This study aimed to adapt the VCD model of ovarian failure to aged mice and investigate the effects on bladder function

Study Design & Methods

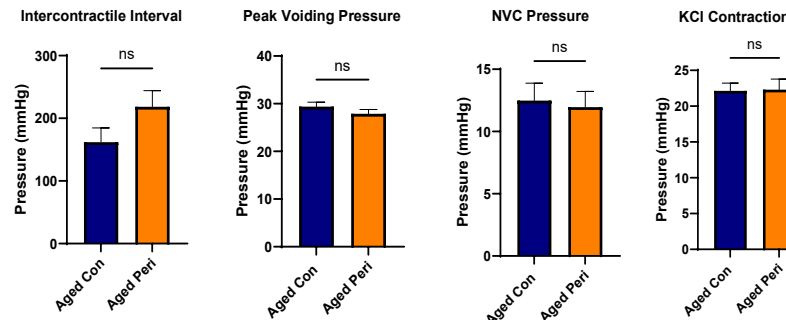


Results

	Cycle Length	Final Bladder Weight	Final Body Weight
Aged Con	4-5 days	26.33±1.26mg	32.21±0.63mg
Aged Peri	>6 days	29.80±1.56mg	33.52±0.63mg

- Extended oestrus confirmed perimenopause in aged mice
- 30% of mice showed abnormal cycles before treatment

Cystometry

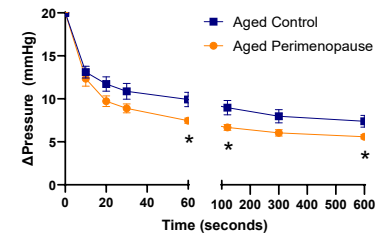


- Voiding behaviour and cystometric parameters were unchanged

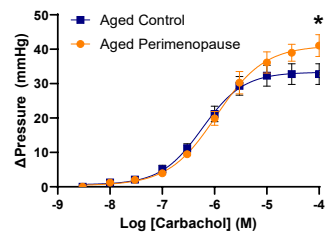
Isolated Whole Bladders

Detrusor function

Stretch-relaxation after filling to 20mmHg



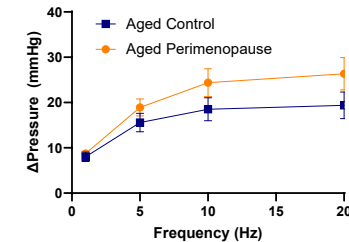
Cholinergic responses



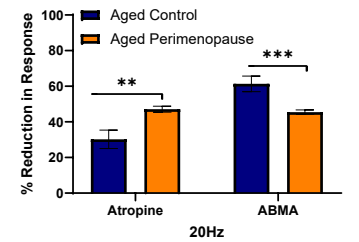
- Enhanced stretch-relaxation in perimenopausal animals
- Responses to KCl, ATP and isoprenaline were unchanged
- Cholinergic responses were enhanced

Nerve-mediated responses

Neurogenic responses to EFS



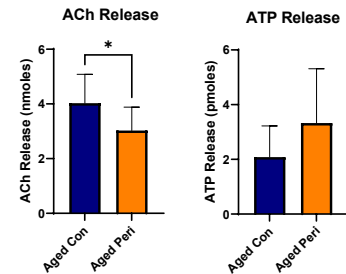
Relative contribution of neurotransmitters



- Responses to EFS were unchanged
- ACh played a greater role in neurotransmission

Urothelial mediator release

- Decreased serosal ACh release



Conclusion

- Bladder physiology changes emerge during perimenopause, before any change in voiding.
- These are likely to be compensatory mechanisms that normalise micturition.