Abstract # 1117. Additive pro-erectile effect of Low intensity-Shockwave Therapy (Li-ESWT) delivered by Aries® combined with sildenafil in spontaneously hypertensive rats (SHR)

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OBJECTIVES

- Hypertension is a risk factor for erectile function in humans.
- Low intensity extracorporeal shock waves therapy (Li-ESWT) has been reported to improve erectile function in patients with moderate or severe ED or even convert phosphodiesterase type 5 inhibitors (PDE5is) non-responders to responders.

Indeed, we and others have reported on the efficacy of Li-ESWT in diabetic rat models of ED [1], but studies of Li-ESWT on hypertension associated ED models have not been described.

**Aim of the study:**

To investigate whether Li-ESWT could further enhance in vivo erectile responses following acute sildenafil administration in the spontaneously hypertensive rats (SHR), a validated model for hypertension-associated ED [2-3].

MATERIALS & METHODS

**Li-ESWT Treatment protocol:**

Male SHR (n=12/group) were used at 11 weeks of age. ED function and in vivo experiments were performed at 22-23 weeks of age.

- Acute treatment: male rats were anesthetized with 10% ketamine 10% xylazine i.p. and were submitted to a focused extracorporeal shock wave therapy with a focused shockwave source (Aries®, Dornier Medtech, Germany).

- Chronic treatment: male rats were submitted to a specially designed water-filled tank. Following a 4-week wash-out period, erectile function was assessed by electrical stimulation of the cavernous nerve in rats under anesthetics.

Erectile function evaluation: electrical stimulation of the cavernous nerve (CN) at different frequencies (0, 2, 3, 4, 5, 7.5 and 10 Hz) at 3-minute intervals in a randomized manner in order to assess the erectile responses. Erectile responses to ES CN were expressed as a ratio of ICP (mmHg) / MAP (mmHg) x 100. ICP being the difference between MAP at the fascial level, i.e. before stimulation and ICP during the plateau phase of the erectile response, and MAP the mean arterial pressure during the plateau phase, and as the ratio of AUCtot / MAP and AUC45 / MAP, AUCtot and AUC45 being the area under the curve during the whole erectile response or the first 45 s during ES CN.

**CONCLUSIONS**

- This study shows that acute sildenafil significantly improved erectile responses elicited by ES CN in SHR, in line with clinical findings reporting a response to PDE5is in hypertension associated ED.
- Interestingly, this study reports that Li-ESWT delivered by Aries® was able to potentiate the pro-erectile effect of acute sildenafil in an experimental model of ED associated to hypertension, the SHR.
- This experimental study confirms the therapeutic benefit of Li-ESWT in ED of vascular origin.
- Furthermore, it may indicate that combining PDE5i with Li-ESWT delivered by Aries® could salvage PDE5is non responders.
- To our knowledge, this is the first study to investigate the effect of Li-ESWT for ED using an SHR model.

REFERENCES


RESULTS

**Effect of Li-ESWT on erectile function in SHR**

The erectile responses elicited by electrical stimulation of the cavernous nerve (9V, 1 ms for 45s) were significantly increased in SHR treated with acute sildenafil at 0.3mg/kg ESWT delivered by Aries® significantly increased erectile responses of SHRs treated with acute sildenafil alone.

**REFERENCES**