



Erectile dysfunction in db/db mice

A MODEL OF ERECTILE DYSFUNCTION DUE TO METABOLIC SYNDROME

Model

The db/db mice (BKS(D)-Lepr^{db}/JOrlRj) has null leptin receptor due to a naturally occurring recessive mutation. Their pathophysiological conditions reflects all aspects of type II diabetes associated with obesity.

Species

Mouse

Interest

- db/db mice is a model of type II diabetes-induced erectile dysfunction.
- Advantage over Goto-Kakizaki rat: fits human diabetic corpus cavernosum in vitro profile more closely (decrease NANC relaxation in db/db vs increase NANC relaxation in Goto-Kakizaki rats).
- Advantage over the High Fat Diet+Streptozotocin rat: progressive, naturally-induced, type 2 diabetes with obesity.

Model Description

- Procedure is performed under pentobarbital anesthesia.
- Erectile responses (measured through intracavernous pressure, ICP) of controlled amplitude are generated by electrical stimulations (ES) of the cavernous nerve.
- Ability of drug candidate to enhance erectile response is assessed within or between animals.
- This model has been validated using sildenafil (PDE5 inhibitors).

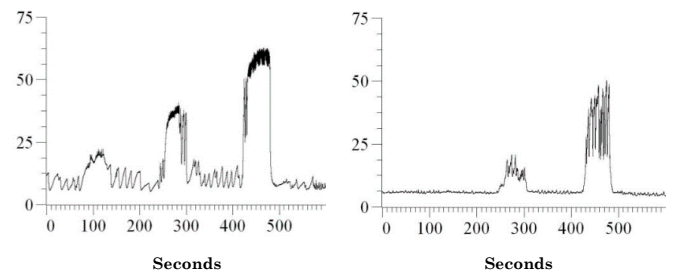
Evaluated Parameters

- Mean, maximal value, and area under the curve of the ICP are measured during ES (ICP_{mean} and ICP_{max} respectively).
- All parameters are expressed relative to the corresponding blood pressure (BP).

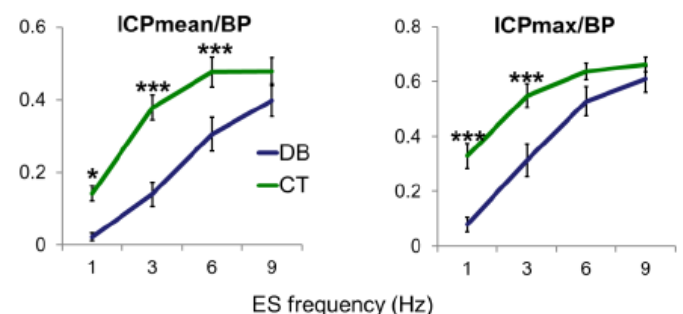
References

- Luttrell IP *et al.* Am. J. Physiol. Heart Circ. Physiol. 294: H2204-11, 2008.
- Carneiro FS *et al.* J. Sex. Med. 5: 1156-66, 2008.
- Allard J, Palea S, Lluell P, Poster presented at the International Symposium on prostate, androgens and men's sexual health, Berlin, June 21-23, 2013.

Example of recording of intracavernosal pressure



DB mice displays consistent erectile dysfunction



Impaired renal function in db/db mice

