Facilitation of proceptive/sexual motivation in female rats by a serotonin 2A/2C (5-HT$_{2A/2C}$) receptors agonist

# 1077

**ABSTRACT**

Facilitation of proceptive/sexual motivation in female rats by a serotonin 2A/2C (5-HT$_{2A/2C}$) receptors agonist.

**OBJECTIVES**

- To investigate the effects of DOI on proceptive (darts and hops and ear wigglings) and receptive (lordosis) behaviors in ovariectomized female rats with a submaximal hormonal supplementation.

**METHODS**

- Female Long Evans rats (250-275 g) were bilaterally ovariectomized (OVX) under isoflurane anesthesia.
- OVX rats were injected subcutaneously (s.c.) with a submaximal hormonal priming with estradiol benzoate (EB 10 µg at 48 h before the test) and progesterone (P 230 µg at 4.5 h before testing) in a volume of 0.1 ml of saline (Plaus and Pfaff, 1992).
- Proceptive and receptive behaviors were evaluated in a rectangular chamber (60 x 31 x 20 cm) in dark phase of light-dark cycle. After a 5-min habituation period for the females to the chambers, a sexually active male (previously habituated to the chamber) was placed with the female for a 30-min mating test.

**RESULTS**

- DOI (0.1-1 mg/kg) intraperitoneally increased hops and darts. Lordosis was not affected by DOI.
- DOI (0.5 and 1 mg/kg) increased hops and darts. Lordosis was not modified by DOI treatment whatever the period of observation.

**CONCLUSION**

- DOI facilitated sexual motivation in females which received a submaximal hormonal supplementation, without modifying the lordosis response.

**REFERENCES**


**SUMMARY OF RESULTS**

- Our data demonstrated that DOI at 0.5 and 1 mg/kg increased sexual proceptive behavior investigated with the display of hops and darts per mount that is the most common soliciting behavior in ovariectomized female rats (Erikina, 1989) receiving a submaximal hormonal supplementation. Ear wigglings were also increased by DOI (1 mg/kg).

- Lordosis was not modified by DOI treatment whatever the dose.

**BACKGROUND**

- In Europe, 10 to 40 % of women aged between 14 and 60 years report low sexual desire (see review by Agnati et al., 2004).
- In women, desire has been described as “conscious impulse toward something” or “sexual urge or appetite”, which are signs of motivation. According to these definitions, desire in women is equivalent to what is called sexual motivation in animals (Ågmo et al., 2004).
- Estrous female rats display hopping, darting and ear wiggling and solicitation for mounting. These female sexual behaviors, which represent anticipatory and motivational aspects have been collectively termed proceptivity by behavioral scientists (Beach, 1976).
- Sexual receptivity has been defined in terms of the display of a characteristic spinal reflex, the lordosis response (Hardy and DeBold, 1971), which represents the consummatory aspect of sexual behavior (Beach, 1976).
- DOI (3(2R,5S)-diethoxy-4-iodophenyl-2-amino propanoic acid hydrochloride) is a 5-HT$_{2A/2C}$ receptors agonist.
- DOI increased lordosis in low sexually receptive females (Wolf et al., 1998; 1999) or could protect against the lordosis-inhibiting effects of 5-HT and 5-HT$_{2A}$ agonists (Maswood et al., 1996).
- The administration of DOI to non ovariectomized female rats primed with estradiol benzoate (EB) and progesterone (P), increased sexual motivation in paced mating behavior, by decreasing return latencies following ejaculation and inter-intromission intervals (Niedergaard et al., 2004).

**TABLE**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Ear wigglings</th>
<th>Mounts</th>
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</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>0.76 ± 0.16</td>
<td>0.16</td>
</tr>
<tr>
<td>DOI 0.5 mg/kg</td>
<td>1.26 ± 0.30</td>
<td>0.30</td>
</tr>
<tr>
<td>DOI 1 mg/kg</td>
<td>1.31 ± 0.20</td>
<td>0.17</td>
</tr>
<tr>
<td>Prolongation factor</td>
<td>1.47 ± 0.18</td>
<td>0.27</td>
</tr>
</tbody>
</table>

**Ear wigglings/mounts were significantly increased 10-20 min after injection of DOI 0.5 mg/kg, as compared to saline.**