

Overlap between ejaculation-induced deactivation and 5-HT<sub>1A</sub> expression in the amygdala  
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**Background.** Ejaculation consists of a cascade of involuntary muscular contractions leading to expulsion of seminal fluids. Animal research has identified the amygdala as one of four brain structures involved in the regulation of ejaculation. Recently we have confirmed this in humans: amygdalar perfusion was decreased during ejaculation.

Central serotonin is a modulator of ejaculatory behaviour indicated by increased ejaculation latencies induced by selective serotonin reuptake inhibitors. Ethopharmacological studies in experimental animals confirm this and identify the 5-HT<sub>1A</sub> receptor subtypes as particularly important. 5-HT<sub>1A</sub> receptors mediate inhibition in amygdalar post-synaptic neurones.

**Aim.** We hypothesised that the amygdalar deactivation is due to 5-HT<sub>1A</sub>-mediated inhibition of excitatory neurotransmission in the amygdala. To test the feasibility of this concept we aimed to study the overlap between the deactivation pattern and 5-HT<sub>1A</sub> expression in humans using PET.

**Material and Methods.** 10 healthy males were instructed to ejaculate during a PET-scan with [<sup>15</sup>O]-H<sub>2</sub>O. 3D deactivation maps were computed with SPM99. 3D 5-HT<sub>1A</sub> receptor maps were obtained by [<sup>18</sup>F]-MPPF and PET with conversion to parametric binding potential images. The two images were overlain mathematically to examine spatial overlaps.

**Results.** The most prominent deactivation was in the amygdala. 5-HT<sub>1A</sub> expression was clearly present in hippocampus, amygdala and insular cortex. There was one very striking overlap between the ejaculation deactivation map and the 5-HT<sub>1A</sub> map: the amygdala.

**Conclusion.** We conclude that the 5-HT<sub>1A</sub> receptor in the amygdala is a possible mediator of amygdalar deactivation due to ejaculation. Future studies will investigate amygdalar 5-HT<sub>1A</sub> receptor expression in humans in relation to ejaculation latency.

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Preferred poster session: Friday 4 June.