

## original article

## Clomipramine affects sexual behavior and reproductive functions in male rats

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The present study investigated the influence of Clomipramine (Clmp) on male rat's sexual behavior, histology of testes and serum testosterone concentration.

**Material and Methods**

The study was conducted on male Sprague-Dawley rats in four groups of 12 rats each. Group I served as control and the therapeutic dose of 27mg/kg was given to Group II, III and IV as half therapeutic dose ( $\frac{1}{2}$ TD), therapeutic dose (TD) & double the therapeutic dose (2TD) of Clmp respectively. Sexual behavior of male rats was studied on 0, 15<sup>th</sup>, 30<sup>th</sup> & 60<sup>th</sup> days by challenging them with female rats in estrous phase. After 30 days treatment, blood samples were collected from half of the animals in each group and sacrificed, remaining animals on 60th day. Testes were collected and processed for histopathological examination. Serum separated and stored at -20°C for testosterone estimation.

**Results and Conclusions**

Our study indicated that Clmp produced dose & time dependent sexual dysfunction. It also showed that  $\frac{1}{2}$ TD of Clmp impaired the sexual behavior without decreasing the testosterone levels, TD & 2TD of Clmp produced sexual dysfunction and also decreased the serum testosterone levels and testicular cells count. Reduction in percentage of rats mounted, intromitted and ejaculated was observed dose and time dependently in all the doses of Clmp tested. All the latencies like mount latency, intromission latency, ejaculation latency and post ejaculatory pause were increased with all the doses of Clmp. Significant fall in testosterone was observed in TD and 2TD at the end of 30 days and 60 days. Reduction in testicular cell count was observed in  $\frac{1}{2}$ TD, TD, 2TD after 30 days and further decline was observed at the end of 60 days treatment. However this was significant in TD and 2TD treatment groups.

**Keywords:** Clomipramine, Male rat sexual dysfunction, reproductive functions, Testosterone, Testes.

**INTRODUCTION**

Obsessive compulsive disorder (OCD) is a syndrome characterized by obsessions and or compulsions that together last at least an hour a day and is sufficiently bothersome that they interfere with ones normal, social or occupational functioning. Obsessions are experienced internally and subjectively by the patient as thoughts, impulses or images. According to standard definitions in the diagnostic and statistical manual of mental disorder<sup>1</sup> obsessions are intrusive, inappropriate, and cause marked anxiety and distress. Common obsessions are contamination, aggression, religion, safety / harm, need for exactness or symmetry, somatic (body) fears etc. Compulsions on the other hand are repetitive behaviors, or purposeful mental acts, that are sometimes observed by family members or clinicians. The common compulsions are checking, cleaning / washing, counting, repeating, ordering / arranging, hoarding / collecting etc. Interest in OCD sky rocketed once Clmp was recognized throughout the world to be an effective treatment in the mid 1980s. Originally thought to be rare condition, recent epidemiological studies suggest that OCD exists in the adult population in about 1 out of every 50 adults, and in 1 out of every 200 children.

It has only been recognized widely and on worldwide basis for the treatment of OCD in mid 1980s. Although some similarities exists between the treatment of OCD with SSRIs and the treatment of depression with SSRIs, there are also some important differences, in general & doses for SSRI in OCD are greater than the doses for the treatment of depression. Also onset of therapeutic effects may be more delayed in OCD than it is in depression.<sup>2</sup>

Clmp is the imipramine analogue of chlorpromazine. Due to its action against anxiety disorders and panic attacks, it is the only drug with 2 entries in the essential drugs list of the WHO. Regarding the compulsive disorders it is now the "gold standard" of therapy against which other drugs are measured.<sup>3-7</sup> Chronic use of Clmp leads to sexual dysfunction in humans<sup>8-9</sup> and in male neonatal rats after the attainment of adulthood.<sup>10</sup> Compared to other tricyclic antidepressants, it has greater effect on dopamine blockade and serotonin reuptake inhibi-

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