These results suggest that methysergide induced feeding is associated with changes in NPYergic activity in critical hypothalamic areas. In the chronically mated rats, NPY levels were significantly increased in the PVN and ARC in the methysergide treated rats (PVN 61.6 ± 2.6 vs 47.2 ± 3.2, ARC 49.2 ± 4.9 vs 47.2 ± 4.0, p<0.01). Again NPY levels were significantly increased in the methysergide treated rats (PVN 66.2 ± 6.3 vs 47.2 ± 3.2, ARC 49.2 ± 4.9 vs 47.2 ± 4.0, p=0.03). These results suggest that the hypophagia associated with nicotine treatment may be a result of reduced hypothalamic NPYergic activity.

---

**Alterations in Neuropeptide Y Levels in the Hypothalamus of the Rat Following Treatment with Methysergide**


Department of Medicine, University of Liverpool, Liverpool L69 3BX

Methysergide (Meth) is a non-selective 5-HT antagonist which stimulates feeding in rats. 5-HT has been suggested to induce satiety. Neuropeptide Y (NPY) is a 36 amino-acid peptide structurally related to pancreatic polypeptide, and one of the most abundant neuropeptides in the brain. 5-HT fibres project to the hypothalamus particularly the paraventricular (PVN) and arcuate (ARC) nuclei, sites of NPY action and synthesis respectively. This study was undertaken to examine the effect of acute and chronic administration of methysergide on hypothalamic NPY.

Male Wistar rats were used. In the acute experiment, rats were injected with either saline (0.9% n=8) or methysergide (10mg/kg n=8) and killed after four hours. In the chronic experiment, rats were implanted with mini-osmotic pumps filled with either saline (0.9% n=8) or methysergide (10mg/kg/day n=8). Rats were killed after seven days.

Food intake was measured in the methysergide treated rats after four hours compared with the saline treated rats (p<0.01). NPY levels were significantly increased in the PVN and ARC in the methysergide treated rats (PVN 61 ± 3.2 vs 47 ± 3 fmol/ug protein p<0.01, ARC 49 ± 2.4 vs 27 ± 3.2 p<0.001). In the chronically treated rats food intake was raised by 13% over seven days (p<0.01).

Again NPY levels were significantly increased in the methysergide treated rats (PVN 66 ± 6.2 vs 47 ± 3.1 fmol/ug protein p=0.01, ARC 38.5 ± 3 vs 27.4 ± 3.2 p=0.02). These results suggest that methysergide induced feeding is associated with changes in NPYergic activity in critical hypothalamic areas.