THE EFFECT OF VILOXAZINE HYDROCHLORIDE (VIVALAN) ON FOOD INTAKE AND OBESITY IN THE RAT

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The antidepressant drug Vivalan (viloxazine hydrochloride) has been reported to decrease food intake in patients in whom overeating and craving for food are significant elements of the depressive syndrome (Neubauer, H, personal communication). Little experimental evidence exists for the mechanism or the extent of this effect and we have therefore modified a model of obesity in the laboratory rat, in order to test this hypothesis.

Schafani & Gorman (1977) reported that, offered a selection of foods rather than a standard diet of rat pellets, rats will overeat and become obese. In our experiments, female Wistar rats (University of Bath strain) weighing between 190 and 230g at the start of each experiment were used in groups of 6. Female animals of this age given free access to oxoid 41B pellets and water put on less than 20g body weight in 10 weeks. Animals given, in addition, access to cheese, luncheon meat, dried fruit and chocolate, plus either "Rice Krispies", tinned fruit salad, mallow biscuits and "Ritz" cheddar crackers or "Sugar Puffs", water biscuits, peanut butter and digestive biscuits, put on 158 $\pm$ 16g (mean $\pm$ SE) over the same time period.

In order to test the hypothesis that viloxazine decreases food intake, one group of rats was provided with the drug in the drinking water at a concentration of 0·1mg ml^{-1} which, assuming a daily water consumption of 20ml, gave a daily dose of 10mg. This group was compared to a control group given no drug and a third group given the known anorectic agent fenfluramine by the same route and at the same concentration. After 6 weeks, the weight increases were controls 77 $\pm$ 6g, viloxazine-treated 58 $\pm$ 8g, fenfluramine-treated 23 $\pm$ 3g (differences from control significant $P < 0{\cdot}01$ and $P < 0{\cdot}001$, respectively). When the experiment was continued for a further 5 weeks during which all groups received no drug, the weight increases were 64$\pm$7g, 56 $\pm$ 6g and 57 $\pm$ 5g, respectively. In a similar 10 week experiment during which the drugs were administered only during the second 5 weeks, the effect of the same concentration of fenflurmaine was even more marked, the net change in body weight being a decrease of 10 $\pm$ 5g, compared to an increase of 64 $\pm$ 7g in control animals. In contrast, although viloxazine produced a slight inhibition of weight gain, the difference from controls was not statistically significant.

In all groups there was a significant correlation between body weight and the deposition of abdominal fat as estimated post mortem, and the increase in body weight was also directly proportional to increased food intake. Viloxazine did not appear to change the proportions of fat, carbohydrate or protein consumed.

Thus, although viloxazine significantly reduced food intake in the initial stages, the effect became less evident with time. Certainly, viloxazine appeared much less effective than the known anorectic agent fenfluramine.

Schafani, A. & Gorman, A. M. (1977). Physiology & Behaviour, 18, 1021-1027.