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Meeting abstract

Behavioural sensitisation of rat dams treated with morphine pre- and postpartum

Melinda Sobor*[1,2], Julia Timár[1], Susanna Gyarmati[1] and Susanna Fürst[1,3]

Address: [1]Department of Pharmacology and Pharmacotherapy, Semmelweis University, 1089 Budapest, Hungary, [2]National Institute of Pharmacy, 1051 Budapest, Hungary and [3]HAS-SE Neuropsychopharmacology Research Group, 1089 Budapest, Hungary

Email: Melinda Sobor* - sobor@ogyi.hu

* Corresponding author

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Background

In our previous experiments a trend to sensitisation to maternal behavioural disruptive and conditioned place preference (CPP)-inducing effects of morphine (MO) was observed when rat dams were treated chronically with a constant medium dose of MO during pregnancy and lactation. The aim of the present work was to perform more detailed studies how chronic MO treatment of dams influences behavioural effects of subsequent MO challenge.

Methods

Pregnant Wistar rats, from the day of mating were treated daily with MO (10 mg/kg, s.c.) or saline (SAL) until weaning (postpartum day, PD, 21). In both treatment groups maternal behaviour (active nursing, passive nursing, littering and behaviours out of the nest) was observed after an acute challenge with saline, 3 mg/kg naloxone s.c. (NX), 10 mg/kg MO s.c. and 10 mg/kg MO plus 3 mg/kg NX s.c. on PD2, PD3, PD5 and PD7, respectively. In a different population of dams, a pup retrieval test was performed after the same challenge. Experiments started 30 min after MO and 10 min after NX injection. In a further population of MO- and SAL-treated dams, NX aversion test was made using the place preference paradigm.

Results

(1) Acute challenge with MO significantly impaired the maternal behaviour in both groups; this effect of MO could be antagonised completely by NX in the SAL-treated group, but only partially in the MO-treated one. This appeared both in observational and pup retrieval tests. (2) MO treatment significantly potentiated the ability of naloxone to produce place aversion.

Conclusion

The data indicate that constant medium dose MO treatment during pregnancy and lactation results in sensitisation to the place aversion-inducing effect of NX similarly to MO on CPP, but it attenuates the ability of NX to antagonise the effect of MO on MB.

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