Nitromusk compounds in women with gynecological and endocrine dysfunction.

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Abstract
Musk xylene (MX), musk ketone (MK), musk ambrette, musk moskene, and musk tibetene are synthetic fragrances. Between 1994 and 1996 these five nitromusk compounds (NMCs) were tested in the blood of 152 women who consulted the Endocrinological Department of the University Hospital of Obstetrics and Gynecology, Heidelberg, Germany, because of gynecological problems. The testing was conducted by gas chromatography with mass-specific detector and mass spectrometry in a retrospective cross-sectional study. MX was detected in 95% and MK in 85% of the blood samples (>20 ng per liter whole blood). The median concentration of MX was 65.5 ng/L and the maximum level of MX was 1183 ng/L; the corresponding values for MK were respectively 55.5 and 518 ng/L. The other three NMCs were found in only a few patients or not at all. Significant associations between MX and MK concentrations were found in blood and different clinical parameters of the endocrine system. MX and MK may act centrally as a disrupter of the (supra-) hypothalamic-ovarian axis, which may result in a mild ovarian insufficiency. On the basis of our data, a reproductive toxicity and an endocrine effect of NMCs in women cannot be ruled out. Further experimental and clinical studies should be conducted.

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