

Publication

Analytical interference of 4-hydroxy-3-methoxymethamphetamine with the measurement of plasma free normetanephrine by ultra-high pressure liquid chromatography-tandem mass spectrometry

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The diagnosis of pheochromocytoma relies on the measurement of plasma free metanephrines assay whose reliability has been considerably improved by ultra-high pressure liquid chromatography tandem mass spectrometry (UHPLC-MS/MS). Here we report an analytical interference occurring between 4-hydroxy-3-methoxymethamphetamine (HMMA), a metabolite of 3,4-methylenedioxymethamphetamine (MDMA, "Ecstasy"), and normetanephrine (NMN) since they share a common pharmacophore resulting in the same product ion after fragmentation.; Synthetic HMMA was spiked into plasma samples containing various concentrations of NMN and the intensity of the interference was determined by UPLC-MS/MS before and after improvement of the analytical method.; Using a careful adjustment of chromatographic conditions including the change of the UPLC analytical column, we were able to distinguish both compounds. HMMA interference for NMN determination should be seriously considered since MDMA activates the sympathetic nervous system and if confounded with NMN may lead to false-positive tests when performing a differential diagnostic of pheochromocytoma.

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