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Alternative long-term markers for the detection of methyltestosterone misuse

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Abstract

The misuse of methyltestosterone is normally detected by the detection of the main metabolites 17 α -methyl-5 α -androstane-3 α ,17 β -diol and 17 α -methyl-5 β -androstane-3 α ,17 β -diol. The common routine method for this purpose generally involves enzymatic hydrolysis using β -glucuronidase enzymes, liquid-liquid extraction and derivatization prior to GC-MS analysis.

The use of alternative analytical approaches or the detection of novel metabolites might reduce the sample treatment and/or improve the retrospectivity of the analysis. Thus, the LC-MS/MS detection of the methyltestosterone metabolite 6-ene-epi-methyltestosterone has been recently reported as an efficient tool to improve the retrospectivity of the detection of methyltestosterone misuse. Among the potential alternative methodologies, the direct detection of phase II metabolites by LC-MS/MS presents several theoretical advantages like avoiding the hydrolysis and derivatization steps.

In this study, the direct detection of phase II metabolites for the screening of methyltestosterone misuse is evaluated. Mass spectrometric conditions are optimized and discussed. The applicability of this detection is evaluated by the analysis of an excretion studies after a single methyltestosterone administration. The results are compared with those obtained by the common GC-MS approach.

For the complete paper, please refer to:

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