MDMA and MDA Cross Reactivity Observed with Abbott TDX Amphetamine/Methamphetamine Reagents,
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Abbott Laboratories has recently introduced a fluorescent polarization immunoassay kit for detection of amphetamine and methamphetamine in urine for use on the Abbott TDX. With these reagents, Abbott has successfully eliminated most of the cross reactivity with other sympathomimetic amines and similar compounds often observed in other immunoassays (1). However, we have noted that the TDX amphetamine/methamphetamine kit does cross react significantly with 3,4-methylenedioxymethamphetamine (MDMA), also known as "Ecstasy," and 3,4-methylenedioxyamphetamine (MDA).

A 25-year-old woman was brought to the emergency room by her husband, who admitted that his wife had been using Ecstasy. During the drug screen for this patient, results of an amphetamine/methamphetamine fluorescent polarization were positive. GC/MS analysis of an alkaline extract of the urine sample (2) confirmed the presence of MDMA and, in addition, ruled out the presence of amphetamine or methamphetamine.

To confirm this suspected cross reactivity of TDX reagents with MDMA, we tested, with the Abbott kit, urine from a rat given 40 mg of MDMA per kilogram, subcutaneously. MDMA is reportedly a major metabolite of MDMA in rats and is suspected to be so in humans as well (3). This rat urine contained both the parent MDMA and its metabolite MDA, and yielded a "HI" positive with the kit.

To determine the percent cross reactivity of both MDMA and MDA with the Abbott reagents, we supplemented blank human urine with MDMA or MDA in the concentrations listed in Table 1, calibrated the instrument, and assayed the samples. Percent cross reactivity was calculated as follows:

\[
\text{percent cross reactivity} = \left( \frac{\text{conc. detected by TDX/actual conc of drug}}{\text{mg/mL}} \right) \times 100
\]

As Table 1 shows, the percent cross reactivity for MDMA tends to be greater for lower concentrations—the cross-reactivity pattern seen in all TDX drug-of-abuse assays (1). For MDA, however, the cross reactivity is much lower and at all concentrations, indicating that the assay is very

<table>
<thead>
<tr>
<th>Added</th>
<th>Detected by TDX</th>
<th>% cross reactivity</th>
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<tbody>
<tr>
<td>MDMA</td>
<td>1.36</td>
<td>91</td>
</tr>
<tr>
<td></td>
<td>11.0</td>
<td>1.53</td>
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<td></td>
<td>101.0</td>
<td>2.15</td>
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<tr>
<td>MDA</td>
<td>0.54</td>
<td>0.35</td>
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<tr>
<td></td>
<td>1.17</td>
<td>0.81</td>
</tr>
<tr>
<td></td>
<td>4.50</td>
<td>&gt;3.00</td>
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</tbody>
</table>

*Mean of n = 3 determinations.

Table 1. Cross Reactivity of MDMA and MDA with Abbott TDX Amphetamine/Methamphetamine Kit

References

Limitations of a Sensitive Assay for Thyrotropin in Managing Patients with Thyroid Disease, J. A. Franklyn, E. G. Black, E. M. Wilson, J. R. E. Davis, and M. C. Sheppard (Dept. of Med., Queen Elizabeth Hospital, Edgbaston, Birmingham, B15 2TH, U.K.)

Here we extend our preliminary evaluation of a sensitive thyrotropin (TSH) assay (1) in a further study of its value in first-line assessment of thyroid function.

First, we examined 97 consecutive thyroid-clinic patients suspected of having thyroid disease. We used an immunoassay method for serum TSH based on enhanced chemiluminescence (Amerlite, Amersham International plc, Amersham, Bucks, U.K.) (2) and measured free thyroxin (FT₄) and free triiodothyronine (FT₃) concentrations with Amerlex-M kits (Amersham). Results of these tests were not known to the managing physician. A diagnosis of hyperthyroidism, hypothyroidism, or euthyroidism was made in each case on the basis of clinical features and from the results of