Improving Screening for At Risk Alcohol Use during Pregnancy

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INTRODUCTION

Urine alcohol testing measures ethanol levels, with a typical window of detection up to 12 hours after alcohol consumption. False positive results can occur due to fermentation in urine samples containing glucose and yeast. In contrast, phosphatidylethanol (PEth) is a metabolite only produced in the presence of ethanol and is considered a biomarker of alcohol consumption. It can be measured in dried blood spot samples up to three weeks after alcohol consumption. The specificity of this biomarker is believed to approach 100%.

OBJECTIVE

To compare the alcohol use detection rate of dried blood spot PEth testing with the current practice of urine ethanol testing, during prenatal care.

RESULTS

Table 1. Differences in Testing Methods

<table>
<thead>
<tr>
<th>PEth in Dried Blood Spots</th>
<th>Ethanol in Urine</th>
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</thead>
<tbody>
<tr>
<td>Number of Positives for Alcohol Consumption (n = 173)</td>
<td>10</td>
</tr>
<tr>
<td>Rate of Detection</td>
<td>5.8%*</td>
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</tbody>
</table>

- Urine ethanol testing identified 2 patients with alcohol use while dried blood spot PEth testing identified 10. One patient had both a positive urine ethanol and blood PEth. Three women self-reported alcohol use, and all three had negative urine ethanol and blood PEth results.
- We had good agreement between the two methods (159 both negative and 4 both positive; (159+4)/173 = 94.2%; Kappa, p<0.001).
- * PEth testing identified significantly more women with alcohol use (McNemar, p=0.021) with a detection rate of 1.2% for urine ethanol and 5.8% for PEth in dried blood spots.

CONCLUSION

- PEth testing in dried blood spots identified significantly more women at risk for alcohol use during pregnancy than urine ethanol testing.
- The findings suggest that PEth testing may be a more reliable alternative to urine ethanol testing for identifying alcohol use during pregnancy.