Assessing prevalence of alcohol consumption in early pregnancy: self-report compared to blood biomarker analysis.

Helen Howlett, 1 Shonag Mackenzie, 1 William K. Gray, 1 Judith Rankin, 2 Leanne Nixon, 1 Anthony Richardson, 1 Eugen-Matthias Strehle, 1 and Nigel W. Brown 1

1. Northumbria Healthcare NHS Foundation Trust, North Tyneside General Hospital, North Shields, UK.
2. Institute of Health & Society, Newcastle University, Newcastle upon Tyne, UK

BACKGROUND
Providing appropriate antenatal and postnatal care for women who drink alcohol in pregnancy is only possible if those at risk can be identified. We aimed to compare the prevalence of alcohol consumption in the first trimester of pregnancy using self-report and blood biomarker analysis.

METHODS
Six-hundred routine blood samples taken at antenatal booking in the first trimester of pregnancy, were anonymously analysed for the presence of Carbohydrate Deficient Transferrin (CDT), a validated marker of chronic alcohol exposure (normalising 2-3 weeks from the start of abstinence) and Gamma-glutamyltransferase (GGT), a liver enzyme which can be elevated for 8 weeks after alcohol exposure. In a separate cohort, data from the same antenatal booking visit was collected from medical records documenting women’s self-reported alcohol consumption.

RESULTS
* The percentage of women who reported alcohol intake in the first trimester was 0.8%. This compared to 74.1% of women who reported consuming alcohol before pregnancy.
* CDT analysis revealed a prevalence rate of 1.4% and GGT a prevalence rate of 3.5% in the first trimester of pregnancy.
* Although those with elevated CDT generally had high levels of GGT, only one person was positive for CDT and GGT.

CONCLUSION
Results from CDT analysis and self-report were similar, but both may under-report. Self-report may be limited by factors such as recall bias, the patient-clinician relationship, expected social norms and fear of perceived judgement. CDT only detects sustained high level drinkers and does not identify low to moderate drinkers. GGT appeared to lack specificity, but it may have value in supporting findings from CDT analysis. Further studies using additional blood biomarkers, or a combination of blood biomarkers and self-report, may be beneficial in detecting a more detailed drinking history in pregnancy.

REFERENCES
Other references available on request