

**Introduction:**

Most UK LT centres use blood alcohol level (BAL) alongside indirect serological biochemical and haematological markers, however BALs have a narrow window of detection (<24 hours). Ethyl glucuronide (ETG) and ethyl sulphate (ETS) are direct markers of alcohol exposure - detected in urine for up to 5 days. The aim of this study was to assess the applicability of urine ETG/ETS in patients attending a LT liver clinic compared to current standard of care (BALs).

**Methods:**

A retrospective audit was performed after local audit approval. Data and samples were collected from patients attending liver clinic at a large regional transplant unit. Samples were collected from February 2022 to February 2023 (n=337 patients). Data was collected on self-reported alcohol use with serological indirect markers of alcohol use. Urine specimens were collected for ETG/ETS analysis and case notes reviewed in retrospect for demographics and outcomes.

**Results:**

In the ETG/ETS negative group (n=285) all BAL were negative therefore 100% true negative rate for BAL with no false positives. In the ETG positive group (n=52), 33 (63%) had a negative BAL reflecting (i) the narrow window of detection for blood alcohol (ii) a false negative rate of 80.5% (which could potentially have led to patients inappropriately assessed for LT if BAL was the gold standard marker).

52 (15%) patients had a positive ETG/ETS test, in 3 (6%) cases transplant was not indicated, 4 (8%) patients were listed (1 cryptogenic, 1 PBC, 1 died and 1 was removed from the list), 1 (2%) patient was assessed but not listed initially however they went to complete alcohol workup and have subsequently been listed and transplanted and 4 (8%) were post-transplant. 40 (77%) patients were not suitable for LT due to ongoing alcohol use, 6 (15%) of these had a positive blood alcohol level and 34 patients (85%) were not suitable due to positive ETG/ETS alone.

There were no statistically significant differences in other biochemical and haematological alcohol biomarkers between the ETG and ETS positive and negative groups using the Mann Whitney U test suggesting that they are therefore not particularly useful in detecting alcohol use in this cohort.

**Conclusions:**

The analytical sensitivity of ETG/ETS is significantly superior to BAL and in our unit become the gold standard marker of alcohol use. The use of BAL alone may mean patients are inappropriately referred for LT whilst still drinking alcohol covertly.