Letter to the Editor

Reply to Crunelle et al. about the Article ‘A Comparison Between Serum Carbohydrate-Deficient Transferrin and Hair Ethyl Glucuronide in Detecting Chronic Alcohol Consumption in Routine’

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To the Editor:

We would like to thank Crunelle and colleagues for the interest shown in our work and for giving us the possibility to better explain our results (Bianchi et al., 2015).

Crunelle is correct in mentioning that the SoHT has proposed two distinct cut-offs to be used in the assessment of alcohol consumption, a 7 pg/mg (to distinguish abstinence from social drinking) and a 30 pg/mg cut-off (to assess excess chronic alcohol intake >60 g per day) (SoHT Guideline on EtG, Cooper et al., 2012). However, in our study, both serum carbohydrate-deficient transferrin (CDT) and hair ethyl glucuronide (EtG) were used to detect chronic alcohol consumption or abuse, as stated in the title. Indeed, at least in Italy, alcohol abuse detection in traffic medicine still represents the main context where these biomarkers are applied and compared. The term ‘negative’ used in the work should therefore be intended as ‘not chronic abuser’ as assessed by CDT or EtG.

Crunelle speculated that the preference of a 30 pg/mg, as a cut-off, could be attributed to some high limit of detection (LOD) or less sensitive method. Moreover, Dr Crunelle reported that, for the data described, it is not possible to know how the analytical technique used could detect the EtG accurately around the cut-off. However, Crunelle could find a partial answer in many points of the article: (a) at the end of the Methods section we clearly reported a reproducibility study (design: 2 samples × 10 days × 2 levels of concentration) for the EtG, with samples at 30 pg/mg and at 10 pg/mg (a level close to the cut-off); (b) from a careful observation of Figure 1 and Table 1, the reader may well understand the full range of EtG concentrations displayed by the sample investigated. We clearly reported (Table 1) for EtG an interquartile range of 6–20 pg/mg (meaning that 25% of our samples had an EtG value ≤6 pg/mg) and a min-max range of 5–760 pg/mg (meaning that some patients displayed an EtG concentration equal to 5 pg/mg). All these data should be enough to suggest to the reader that the method applied in this study could detect EtG concentration at least down to 5 pg/mg. In order to further answer to Crunelle’s criticism, we would like to report that the LOD of the method was 3 pg/mg and that the first sample calibrator used in our study had an EtG concentration of 5 pg/mg, which corresponds to the limit of quantification (LOQ) of our method. Finally, in the sample investigated 251/562 (45%) subjects had EtG ≤7 pg/mg.

We agree with Crunelle et al. that discrepancies between EtG and CDT could be due to different time window (Neels et al., 2014), and indeed this factor was already discussed in the work.

In stating possible interferences to EtG, we referred to alcohol-based hygiene products, medications, cosmetic or even foods. References were cited in order of publication date and not in the same order of the type of interferences reported. Anyway, we thank Dr Crunelle and colleagues for having clarified this point.

In conclusion, we are firmly persuaded that both CDT and EtG, although differently, represent important biomarkers to evaluate chronic alcohol consumption. Main aim of our work was to illustrate, by the use of a large sample of subjects, that large variability exists between CDT and EtG and that in the context of alcohol abuse EtG should help in CDT result interpretation and not be regarded as simply superior to CDT for sensitivity or specificity. Caution in the use of EtG should also be suggested by the limited amount of data published, in contrast with what is available for CDT.

REFERENCES

