

Workshop DRUID 1: Epidemiology

Title: The problem of collecting different body fluids from drivers in the surveys

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Objectives: It is not easy to obtain a blood sample from drivers at the roadside for use in epidemiological studies. Therefore, use of saliva samples has become popular. On the other hand, in studies in injured drivers, obtaining a saliva sample can be problematic, e.g. because of injuries. When drug concentrations in blood and saliva need to be compared e.g. in risk calculations, results from different matrices need to be comparable. Because of the different recoveries with saliva collection devices, saliva: blood ratios should be determined for each collection device.

Methods: Drug concentrations in blood and saliva samples from different studies (Rosita-2, roadside surveys) were analysed by GC-MS and UPLC-MS/MS and the results were compared for different drugs.

Results: While for some drugs like diazepam, relatively good correlation can be observed ($r^2 = 0.98$, $n=23$, Saliva blood ratio 0.033), for most other drugs there is a very wide scatter when comparing saliva and blood concentrations. These findings confirm those of other published studies. One of the possible explanations is the trapping of basic drugs in saliva because of the pH effects.

Conclusion: The correlation between drug concentrations in saliva and whole blood is poor for most drugs. It might be advisable to use whole blood also in a roadside surveys.

Disclaimer:

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