K15 Performance Characteristics of Cozart Rapidscan® Oral Fluid Drug Testing Following Controlled Dental Anaesthetics Infiltration

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After attending this presentation, attendees will understand some aspects of oral fluid drug testing after controlled dental anaesthetics infiltration and its interferences with the final results.

These early findings will impact the forensic community by providing a starting point for effectiveness of oral fluid drug testing when performed on patients who have undergone dental treatments.

Oral fluid is an interesting alternative matrix for drug testing in many environments, including law enforcement, workplace drug testing, and drug treatment facilities. The ease with which specimens can be collected and the potential for oral fluid drug concentrations to reflect blood-drug concentrations make it potentially valuable in a forensic setting. The possible effects on drug detection and quantification in patients who received local anaesthetics for dental treatments have not been examined. Drugs generally appear in oral fluid by passive diffusion from blood, but also may be deposited in the oral cavity during oral administration. Anaesthetic metabolites can be detected in oral fluid and could mimic drug metabolites thus giving a distorted result. The purpose of this study was to determine the performance characteristics of the Cozart Rapidscan oral fluid drug testing for the detection of cocaine and cocaine metabolites in oral fluid following controlled infiltration of Mepivacaine, Lidocaine, and Articaine.

Three different local dental anaesthetics were employed for this research: Mepivacaine 2% (Carboplyna, Dentsply Italia), Mepicavaine 3% (Scandonest, Ogna spa Italia), Lidocaine 2% (Ecocain, Molteni Dental srl Italia) and Articaine 4% (Alfacaina SP, Spada Dentsply Italia). Five volunteers, provided with informed consent, were selected and received local anaesthetic infiltration bilaterally in vestibular fundus of the mental area of the mouth, in different settings: 1.8 ml and 3.6 ml of mepivacaine 2% with 1:100.000 adrenaline; 1.8 ml and 3.6 ml of mepivacaine 3%; 1.8 ml and 3.6
ml of lidocaine 2% with 1:50.000 adrenaline; 1.8 and 3.6 ml of articaine 4% with 1:100.000 adrenaline. The four selected anaesthetic molecules were tested at cutoff concentrations. Oral fluid specimens (N = 200) were taken before anaesthetic infiltration and after 30, 60, 120 and 240 minutes following the infiltration, and were analyzed for cocaine and cocaine metabolites using Cozart rapidscan.

It was concluded that articaine local anaesthetic has a positive interference with the effectiveness of the saliva test for cocaine and cocaine metabolites with the Cozart device at a cutoff of 5 microgram/mL, while mepivacaine and lidocaine have no interference. Results from a larger group of subjects would be needed in order to validate these findings.

Oral Fluid, Cocaine, Dental Anaesthetic

 ** Presenting Author*