K30 Compliance of Individuals Prescribed Dexedrine® Through Determination of Amphetamine Isomer Ratios in Oral Fluid

Gail A. Cooper, PhD, Cozart Bioscience, Ltd, 45 Milton Park, Abingdon, Oxfordshire OX14 4RU, United Kingdom; Frank T. Peters, PhD and Hans H. Maurer, PhD, Department of Experimental and Clinical Toxicology, University of Saarland, Homburg D-66421, Germany; Chris Hand, PhD, Cozart Bioscience, Ltd, 45 Milton Park, Abingdon, Oxfordshire OX14 4RU, United Kingdom*

After attending this presentation, attendees will understand the usefulness of determining amphetamine isomers in oral fluid as a means of assessing a patient's compliance with prescribed Dexedrine®.

An application of oral fluid as means of assessing an individual's compliance with prescribed Dexedrine®.

Oral fluid samples (N=20) were collected from individuals in drug treatment programmes who were prescribed Dexedrine® (N=10) or had a history of amphetamine use (N=10). Samples were collected on-site using the Cozart® RapiScan oral fluid collection system and sent to the laboratory for immunoassay screening. Amphetamine positive screens were confirmed initially by GC-MS-EI following solid-phase extraction with Bond Elut Certify columns and derivatisation with PFPA diluted 1:1 with ethyl acetate.

Oral fluid samples confirmed positive for amphetamine by GCMS-EI were then analysed for both, the S-(+) and R-(-) isomers of amphetamine. After a simple dilution step (carbonate buffer, pH 9), oral fluid samples (0.05 mL) were derivatized with S-(-)-heptafluorobutyrylprolyl chloride. Resulting diastereomers were extracted into 0.1 mL of cyclohexane, separated by GC (HP-5MS column) and detected by MS in the negative-ion chemical ionisation mode, with a calibration range of 75-3750 µg/L for each enantiomer of amphetamine.

Amphetamine was confirmed in all twenty oral fluid samples collected, S-(+)-amphetamine concentrations ranged from below LOQ to 3513 ng/mL and from below LOD to 1872 ng/mL for R-(-)-amphetamine. The R/S-amphetamine ratios ranged from 0.02 to 0.08 with a median of 0.05 for individuals compliant with the prescribed Dexedrine® and from 1.02 to 1.99 with a median of 1.30 for subjects using illicit amphetamine. This study has shown that determining amphetamine isomer ratios in oral fluid provides a simple and effective means of assessing an individuals compliance with prescribed Dexedrine®.

Dexedrine, Isomer Ratios, Oral Fluid

 ** Presenting Author*