Supporting Information

Therapeutic Drug Monitoring in Buprenorphine/Naloxone Treatment for Opioid Use Disorder: Clinical Feasibility and Optimizing Assay Precision

Authors
Hesham Farouk Elarabi1, 2, Nael Hasan1, John Marsden2, Doaa Radwan1, 3, Abdu Adem4, Samya Almamari1, Abuelgasim Elrasheed1

Affiliations
1 National Rehabilitation Center, UAE, Shakhbout City, United Arab Emirates
2 King’s College London, Addictions, London, United Kingdom of Great Britain and Northern Ireland
3 Faculty of Medicine, Institute of Psychiatry, Ain Shams University Cairo, Egypt
4 Department of Pharmacology and Therapeutics, UAE University College of Medicine and Health Sciences, Al Ain, United Arab Emirates

Correspondence
Dr. Hesham Elarabi
National Rehabilitation Center, UAE, Medical Administration
Abu Dhabi
55001 Shakhbout City
United Arab Emirates
hisham.alarabi@nrc.ae
Supplementary File 1:

1 mL of plasma, was mixed with 1 mL of acetate buffer (PH 5.0 100 mM), 20 uL of ISTD (5 PPM), 50 uL, and 5,000 units/mL β-Glucuronidase, and was left to hydrolyse at 65 °C overnight before adding 3 mL of phosphate buffer (100 mM, pH 6). Following a centrifuge, the sample was checked and pH was adjusted to 6.0 ± 0.5 using 100 mM monobasic or dibasic sodium phosphate. Centrifuge was performed again for 10 minutes at 2,000 rpm and the pellet was discarded. The sample was next rinsed with 3 mL of methanol, before adding 3 mL of distilled water and lastly 3 mL of phosphate buffer (100 mM, pH 6.0). Each solvent was applied immediately after the previous one. Aspiration was then performed at soft pressure to avoid complete dryness, before passing 1 mL of the sample through the SPE column at a rate of 1 mL/min. The column was washed with 3 mL of distilled water, 3 mL of acetic acid (100 mmol or 1 Molar), and 3 mL of methanol to remove the excess sample matrix, after which it was left to dry for 10 minutes (at 50 psi). Analytes were eluted from the SPE column by rinsing with 3 mL DCM: IPA: NH₄OH (dichloromethane: isopropyl alcohol: ammonium hydroxide, 78:20:2) before applying soft pressure to elute residual solvents from the column. The elution solvent was prepared daily and was evaporated to dryness at <40 °C (at 5−15 psi). The sample was reconstituted in 200 µL of 20 MPB (mobile phase B: 0.1% formic acid aqueous) 80 MPA (mobile phase A: 0.1% formic acid in methanol). Finally, the concentrated extract was transferred to a micro-volume auto sampler vial.
Fig S2 Calibration curve for buprenorphine and norbuprenorphine.
Fig S3 Signal to noise ratio for buprenorphine standard.