

Correlation between finger prick and venous blood Cortisol using the Point of Care i-CHROMA™ Cortisol Method and Laboratory Method

Bolodeoku J*, Kim T**

*JB Consulting MDP Limited, 1 Bell Street, Maidenhead, Berkshire, SL6 1BU, UK

**Boditech Med Inc, 43 Geodudanji 1-gil, Dongnae-myeon, Chuncheon-si, Gangwon-do 24398, Korea

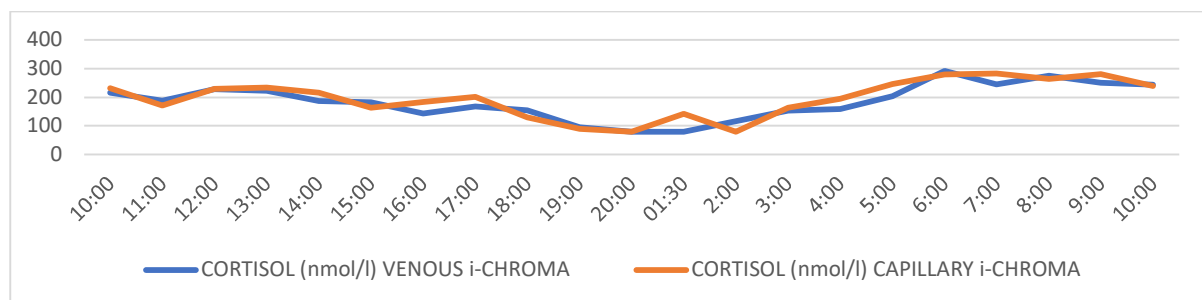
J Bolodeoku, Principal Investigator

Taeyum Kim, General Manager

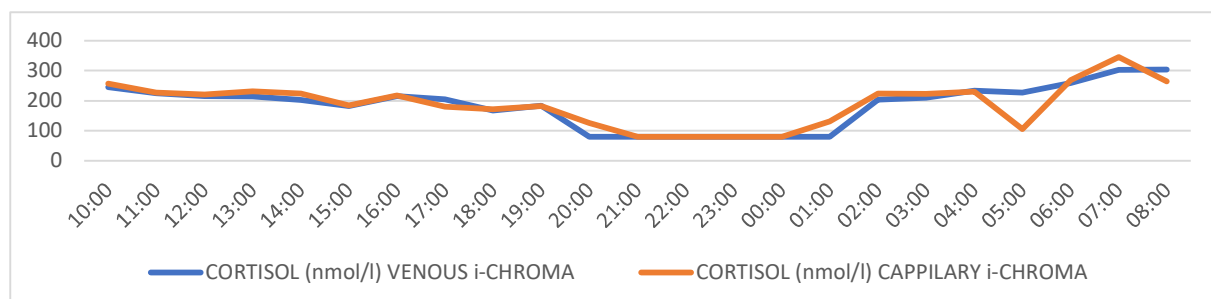
Aim: The purpose of this study was to compare the 24 hour cortisol profile measurements using finger prick (capillary) and venous whole blood samples on an immunoassay point of care (POC) cortisol assay system and compare with laboratory method.

Method: A patient was admitted onto the unit and had two 24 hour cortisol profile measurements. Finger prick and venous samples were taken at 10:00h, 11:00h, 12:00h, 13:00h, 14:00h, 15:00h, 16:00h, 17:00h, 18:00h, 19:00h, 20:00h, 21:00h, 22:00h, 23:00h, 0:00h, 01:00h, 02:00h, 03:00h, 04:00h, 05:00h, 06:00h, 07:00h, 08:00h, 09:00h and 10:00h. The cortisol measurements were made using the i-CHROMA™ Cortisol POC method and a laboratory Cortisol method.

Results: The 1st 24 hour cortisol profile revealed a circadian pattern starting with 216.36 nmol/l (venous) and 230.69 nmol/l (capillary) at 10:00h, then was undetectable (<80 nmol/l) in both samples at 20:00h and rose to 243.89 nmol/l (venous) and 240.36 nmol/l (capillary) at 10:00h the next day. There was very good correlation between the venous and capillary blood cortisol estimations ($r = 0.91$), the capillary blood and laboratory cortisol concentrations ($r = 0.82$) and venous blood and laboratory cortisol concentrations ($r = 0.90$).



The 2nd 24 hour cortisol revealed a circadian pattern starting with 246 nmol/l (venous) and 257.3 nmol/l (capillary) at 10:00h then was undetectable (<80 nmol/l) in both samples at 20:00h and rose to 304.31 nmol/l (venous) and 264.13 nmol/l (capillary) at 08:00h. There was very good correlation between the venous and capillary blood cortisol estimations ($r = 0.89$), the capillary blood and laboratory cortisol concentrations ($r = 0.84$) and venous blood and laboratory cortisol concentrations ($r = 0.91$).



Conclusion: The i-CHROMA™ Cortisol method was able to detect the circadian rhythm in the patient using both venous and capillary blood samples and the results were comparable to the laboratory serum cortisol method.