CAPILLARY BLOOD BASED METHOTREXATE POLYGLUTAMATE ASSAY FOR MONITORING LOW DOSE METHOTREXATE THERAPY IN RHEUMATIC DISEASES

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ABSTRACT

The red blood cell (RBC) Methotrexate (MTX) polyglutamate (MTXPG3) assay is a helpful therapeutic drug monitoring (TDM) tool in autoimmune rheumatic diseases. Our objective was to transition the RBC MTXPG assay from venous blood to capillary blood collected by fingerstick.

METHODS

Adult subjects with Rheumatoid Arthritis (RA) (mean age 62±13 [SD]) treated with low dose weekly MTX therapy (mean dose 17±5 mg/week [SD]) were enrolled from two rheumatology practices in the United States. Clinical staff consented subjects and collected paired specimens; a capillary blood specimen (10µl) collected by fingerstick on volumetric absorptive microsampling device (Neoteryx, Torrance, CA, USA), and; a venous blood specimen (10 ml), collected in EDTA containing tubes. Dried capillary blood and venous blood were shipped overnight to a CAP/CLIA accredited clinical laboratory. RBC MTXPG3 levels from capillary and venous blood were measured using validated liquid chromatography coupled with high sensitivity tandem mass spectrometry. Patient reported outcome estimates comparing venipuncture and fingerstick collection methods were obtained at the time of the visit.

RESULTS

Measurement of capillary blood MTXPG3 levels can be applied to the TDM of MTX in clinical rheumatology practice. PROs suggest that patient training will be required before transitioning from office-based to home-based specimen collection.

CONCLUSION

Measurement of capillary blood MTXPG3 levels can be applied to the TDM of MTX in clinical rheumatology practice.