Clinical Genetics

AB091. Comparison of two haemoglobin electrophoresis platforms for the detection of haemoglobinopathies

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Background: Haemoglobin (Hb) electrophoresis is used as a screening tool to identify thalassemias and haemoglobinopathies. It allows for the quantification of HbA, HbA2, HbF and other Hb variants. An accurate diagnosis and identification of different hemoglobin variants is important for epidemiological studies and management and prevention of the major haemoglobin disorders. We aimed to evaluate the performance of Sebia capillarys 2, using capillary zone electrophoresis (CE), and the BioRad Variant II, using high pressure liquid chromatography (HPLC) in detection of Hb variants.

Methods: A 100 samples of whole blood were run on both the Sebia Capillarys 2 and BioRad Variant II, the chromatograms obtained from both platforms were compared. Five microliter (μL) of whole blood was used for the run on BioRad Variant II and 1 mL of washed red cells was used on Sebia Capillarys 2.

Results: Four most common types of haemoglobin were routinely detected, they were HbA, HbA2, HbF and HbE. The quantity of HbA, HbA2 and variants detected by both platforms were comparable. In 75% of the samples, haemoglobin variants such as Hb Lepore, HbJ-Bangkok, HbG-Honolulu, Hb Queens, and HbQ were detected on both platforms. Sebia Capillarys 2, unlike BioRad Variant II, was able to separate HbE from HbA2, presenting the former as a distinct peak. As HbE is a common variant in this region of the world, accurate quantitation of HbE is important. For the remaining 25% of the samples, BioRad Variant II failed to detect some Hb variants, while they were demonstrated on the Sebia Capillarys 2.

Conclusions: Concurrent use of Sebia Capillarys 2 and BioRad Variant II can potentially give a better coverage of Hb variants detection. The two platforms are able to cross-reference with each other. The identities of the variants can be confirmed by a definitive method such as DNA analysis.

Keywords: Haemoglobin electrophoresis; haemoglobinopathies; haemoglobin variants

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