

EVALUATION OF A NEW TECHNIQUE, FOR THE SIMULTANEOUS IDENTIFICATION OF BLOOD GROUP ABO, RHESUS AND KELL ANTIGENS, BASED ON A LATERAL FLOW ASSAY ON A CARD (MD MULTICARD, MEDION DIAGNOSTICS)

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AIM OF THE STUDY: A new multi-parameter assay, for the typing of blood group, has been recently developed. This assay is a monotest and provides the ability of reliable results in the minimum possible time. The aim of the study was to evaluate first of all the sensitivity and specificity of the method and furthermore to evaluate its usefulness in the routine use and to compare it with the methods that our centre uses currently.

MATERIAL - METHODS: From 11/4/2007 till 10/8/2007, whole blood and coagulated blood samples from 500 patients and 500 blood donors were tested, in a random order, with the MD Multicard, in double and in parallel. The results of the two samples were compared with each other as well as with the results of the routine method of the centre (automated system micro-tube card – AutoVue/Ortho).

The MD Multicard (Medion Diagnostics) is a method of simultaneous multi-parameter identification of blood groups (ABO, Aweak, D, Dweak/variant, C, Cw, c, E, e and Kell) with a lateral flow assay.

Specifically, the method we used consisted of the following steps: a) dilution of the red blood cells with the relevant diluent, b) application of the diluted red blood cells on the application zone of the card, c) addition of the diluent, d) timing until the reading of a clear result and e) taking a picture of the card 5 minutes after the addition of the diluted red blood cells.

In this method the test for the reverse grouping is not included.

RESULTS: 1) The comparison between the Multicard and the AutoVue gave concordant results in all but 2 patient samples. The first sample was from an AAA patient and the AutoVue gave no result. The MD Multicard gave a clear result that was confirmed with other methods. The second sample was from a recently transfused patient and the AutoVue gave O CcDee K+. The MD Multicard gave O CCDee K+ with clear mixed field pattern results for the c and E. Mixed field patterns were also identified in other patients (18/500), by both methods with no discrepancies.

2) In the comparison between whole blood and coagulated blood samples there was a discrepancy in a patient identified as B+. The card with the coagulated blood sample showed a weak band at A, but there was no band at A in the relevant whole blood sample card.

3) The time needed for clear results ranged between 1 min and 40 sec and 1 min and 50 sec after the addition of the diluted red blood cells, both when testing whole blood and coagulated blood samples. For some coagulated blood samples, there was a relative difficulty in taking the right amount of red blood cells, which resulted in increasing the time up to 2 min and 40 sec.

CONCLUSION: The method MD Multicard is of high sensitivity and specificity. The remarkable speed of taking results and the ease of use make this card ideal for emergency cases.