The importance of point-of-care testing for direct oral anticoagulants in bleeding patient with an unclear medical history

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AIM

To present the genuine benefits of using point-of-care tests - DOAC Dipstick® and ClotPro® for screening of DOAC’s treatment in a patient admitted to the emergency department.

BACKGROUND

• The use of DOACs can cause or deteriorate bleeding [1].
• In patients with a lack of medical history fast detection of the presence of DOACs in the patient is essential often.
• We have several new opportunities that allow us to detect the presence of DOACs in patient’s body.
• One of the new point-of-care tests is the ClotPro® device based on the viscoelastic method and the other is the DOAC Dipstick® based on analysis of urine sample.
• The ClotPro® device offers to perform ECA-test and RVV-test that can detect factor Xa inhibitors and thrombin inhibitor in the blood [2].
• The DOAC Dipstick® is a point-of-care dipstick test that is used to detect factor Xa inhibitors and thrombin inhibitor in urine. The detection of DOACs is based on color-changing chemical reactions that occur on the surface of test pads [3].
• Both of these point-of-care tests can detect DOACs in the body in 10-15 minutes with high sensitivity and specificity [4, 5]. We use these point-of-care tests in the emergency department for trauma, bleeding, and stroke patients to exclude the influence of DOACs on coagulation.

METHODS

• We analyzed a case of a confused patient with intracerebral hemorrhage.
• This patient was specific by unclear medical history caused by his confusion and ambiguous medical records.
• According to this incomplete information, it was suspected that the patient was treated with dabigatran or apixaban because he was currently being switched from one drug to another.
• Therefore, we performed the point-of-care testing by DOAC Dipstick®, ClotPro® and conventional laboratory tests.
• We analyzed the results of point-of-care tests and conventional coagulation tests and then identified the advantages and disadvantages of each method.

RESULTS

• DOAC Dipstick® read by DOASENSE Reader® discovered positivity in thrombin inhibitor, negativity in factor Xa inhibitor, and normal level of creatinine in 13 minutes.
• The ClotPro® device detected prolongation in clotting time in ECA-test (461s) and RVV-test (281s) thus proved use of thrombin inhibitor. This result was available in 15 minutes.
• The CT scan showed spontaneous intracerebral hemorrhage in 17 minutes.
• The laboratory testing showed values of INR 1.47, aPTT-R 1.67, Fibrinogen 3.35 in 23 minutes.
• The laboratory testing proved that the blood level of dabigatran was 239 μg/L and 8 μg/L of apixaban in 39 minutes.
• Based on the results of point-of-care tests, idarucizumab was administered after 20 minutes after admission of patient to the emergency department to antagonize the effect of dabigatran and stop the bleeding.

CONCLUSION

• It is important to perform DOAC’s tests in bleeding or stroke patients with an unclear medical history and suspicion of DOAC’s treatment.
• With these tests, we can significantly influence and focus our treatment.
• Point-of-care tests are time-saving and more versatile than conventional laboratory tests.

REFERENCES:

Fig.1: ClotPro® - results of ECA-test and RVV-test

Fig.2: Evaluation of the DOAC Dipstick® on DOASENSE Reader®