THE 20-MINUTE WHOLE BLOOD CLOTTING TEST (20WBCT)

The 20-minute Whole Blood Clotting Test (20WBCT, also WBCT20) is a simple bedside procedure to assess coagulopathy following snakebite. However, it is not without its limitations.

False positive results:
a "false positive" (i.e. non-clotting) 20WBCT in a patient who is not envenomed and has normal blood coagulation, results from the use of a non-glass vessel rather than ordinary (boro-silicate) glass, or a glass vessel that has been cleaned with detergent, soap or washing fluid or is wet or contaminated.

False negative results:
a "false negative" (i.e. clotting) 20WBCT may occur in patients with milder degrees of coagulopathy. The 20WBCT is less sensitive to mild depletion of fibrinogen and other clotting factors, in the early stages of evolving snake venom induced DIC and consumption coagulopathy.

- WHO, 2016

In clinical practice, the WBCT20 has low sensitivity for detecting coagulopathy in snake envenoming and should not over-ride clinical assessment-based decisions about antivenom administration (Isbister et al, 2013)

It is recommended that the prothrombin time (PT) and the International Normalized Ratio (INR) be routinely estimated together with the 20WBCT whenever possible. Other laboratory tests such as activated partial thromboplastin time (aPPT), and fibrinogen assay may be performed, whenever these are available, if the result of the 20WBCT is inconsistent with the clinical condition of the patient.

THE 20WBCT

The 20-minute whole blood clotting test is performed at the bedside as follows:

1. Collect 1 ml of blood into a clean, dry 5 ml boro-silicate glass test tube of internal diameter 10 mm and leave it undisturbed for 20 minutes (Ratnayake et al, 2017).
2. At the end of 20 mins. tilt the tube: observe whether the blood has clotted or not.
3. Conclusions

a) If the blood flows (i.e. no clot), the test is positive, there **is** coagulopathy (envenomed).

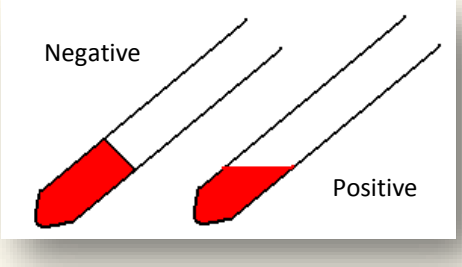
b) If the blood does not flow (i.e. clotted), the test is negative, there **is no** coagulopathy (not envenomed).

If there is any doubt about the result, either repeat the test together with a control sample or seek laboratory tests such as bleeding time and clotting time.

Caution

"However, every effort should be made to eliminate false positive (non-clotting) results by ensuring that ordinary glass is used, that recycled glass vessels are not cleaned with detergents or other cleansing fluids and that a normal control blood is used for comparison in cases where the 20WBCT result is inconsistent with the patient's clinical condition. Accepting that the 20WBCT may remain negative (clotting) in patients with evolving venom-induced DIC, the test should be repeated frequently and antivenom treatment should not be delayed if there is other evidence of antihaemostatic disturbances (e.g. spontaneous systemic bleeding distant from the bite site)."

Source: *Guidelines for the management of snake-bites*, 2nd edition, World Health Organization 2016



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