Working with MonoTem-A and MultiTem-A : how

All necessary operations for a thromboleastometric analysis are controlled by the operator using the Temawin software

Switch ON the device and adjust the four feet (rotating) in such heights to ensure that the bubble in the front plate is centered. This will obtain the perfect perpendicularity necessary to the torsion wire when released and free.

Let the module(s) reach the selected temperature for about 5 minutes. Temperature is visible for each channel when one channel is selected, for such selected channel the temperature indicator and selector is active. The temperature shown is that of the cup holder, good practice requires that the cup stays in the cup holder for some minutes before test to allow reaching the temperature.

Select/click a channel on the display. If necessayr, modify the temperature with up/down arrows. Selecting a channel will activate the buttons “OUT” and “START” on the display signalling the channel is ready.

Disposables are manufactured avoiding contaminations of the surfaces in contact with blood, therefore do not touch disposables with naked hands. Use always non-powdered gloves to handle disposables and blood. Disposables are precisely manufactured to fit in holders, do not reuse disposables as they will fit too loosely to guarentee precision.

Click on “OUT” and the carrier will exted outwardly to allow easy loading of the cup. On the display the “IN” button will light.

Engage a cup in the holder and press down to ensure that it is fully seated down in the carrier’s holder. Allow few minutes for the cup to warm up the the holder’s temperature .

Add 360µl of blood (native or treated) inside the cup. Cover the blood sample in the cup with a disposable pin, observe that the pin is well seated in the blood, straight up and centered.

Click on “IN” : the carrier will automatically transport the cup & pin inside the instrument and stop to allow a further check that there is a pin in the cup. You may use “OUT” to correct any problem and then back “IN”.

To begin the analysis click “START”, the carrier will automatically engage the pin onto the torsion wire and move in the vertical position required. Then the system will let free the pin to hang freely suspended in the blood sample. The software checks its position and automatically calibrates the channel to the correct zero base (may take several seconds) and then activates the yellow led on the front of the module to indicate that the analysis is underway. Obseve on the display the development of the graph and data.

At the end of the analysis click “STOP” : the system will block the torsion wire, disengage the pin from it to let it fall inside the cup and lower the carrier. Click “OUT” to extend the carrier outwardly from the front of the instrument. Press the metal button underneath the carrier to expel the disposable cup with the pin. The Tem-A modules do not require periodic calibration thanks to the initial auto-calibration feature, the modules have no wearing parts to be periodically substituted. When correctly used, the Tem-A modules allows precise hemostasis analysis using the proven Hartert technology.

What data are available ?

Tem-A explores the real-time development of the clotting process and describes it with the following parameters :

- R (Reaction time): graphically coincides with the line originating from zero point to the first point where the graph reaches an amplitude of 2mm.

  It is the time required to begin the reaction with the formation of the first fibrin chains; depends from the plasmatic factors of coagulation and from anticoagulants in the blood.

  All factors affecting fibrin formation modify R value; an elongated R signals poor plasmatic factors and/or presence of anticoagulants and/or sustained hypofibrinogenesis.
  Anticoagulant pharmacological therapy causes extended-length values for R.
  The R value measures also the tendency to hypercoagulation, in this case it will be shorter relative to normals.

- K (Clotting time): it is the time from the first fibrin formation to the conventional amplitude of 20mm.

  It represents the speed of clot building, strictly connected to the platelet function, plasmatic factors and fibrinogen. An increased K value indicates slow clot formation, a low value indicates hypercoagulability.

  Can be corrected with cryoprecipitates or liophilysed fibrinogen

- MA (Maximum Amplitude) it is the maximum graph amplitude and represents the sealing ability of the clot. It is strictly related to the number, but also to the functionality of platelets and their interacion with fibrin. Lower values indicate poor platelets activity that can be corrected giving platelets, higher values may require the adoption of antiplatelet therapy
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- Angle-**α** is the angle of the tangent to the external curve**.** It represents the speed of clot formation from fibrins' production and their interaction with platelets, speed that depends mostly from fibrinogen and factor XIII. A low value indicates hypocoagulability, a high value hypercoagulability.
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- **LYSIS-LY30** measures the speed of clot reduction 30 minutes after MA, if over 7,5% represents hyperfibrinolisis and can be corrected with antifibrinolitics (tranex).

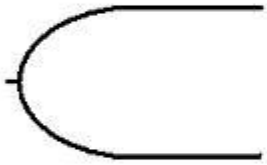
THROMBOELATOMETRY PROFILES

normal profile of native blood = R about 14min, MA about 55,
slight retraction towards the end

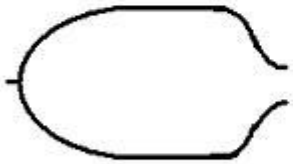
anticoagulant/hemophilia (factor XIII)/other factor deficiency =
elongated R - narrow MA

platelet inhibition/thrombocytopenia or pathia =
short R - very narrow MA

Fibrinolysis/urokinase/streptokinase/tP-a =
Short R - MA downgrading - LY30>7,5%

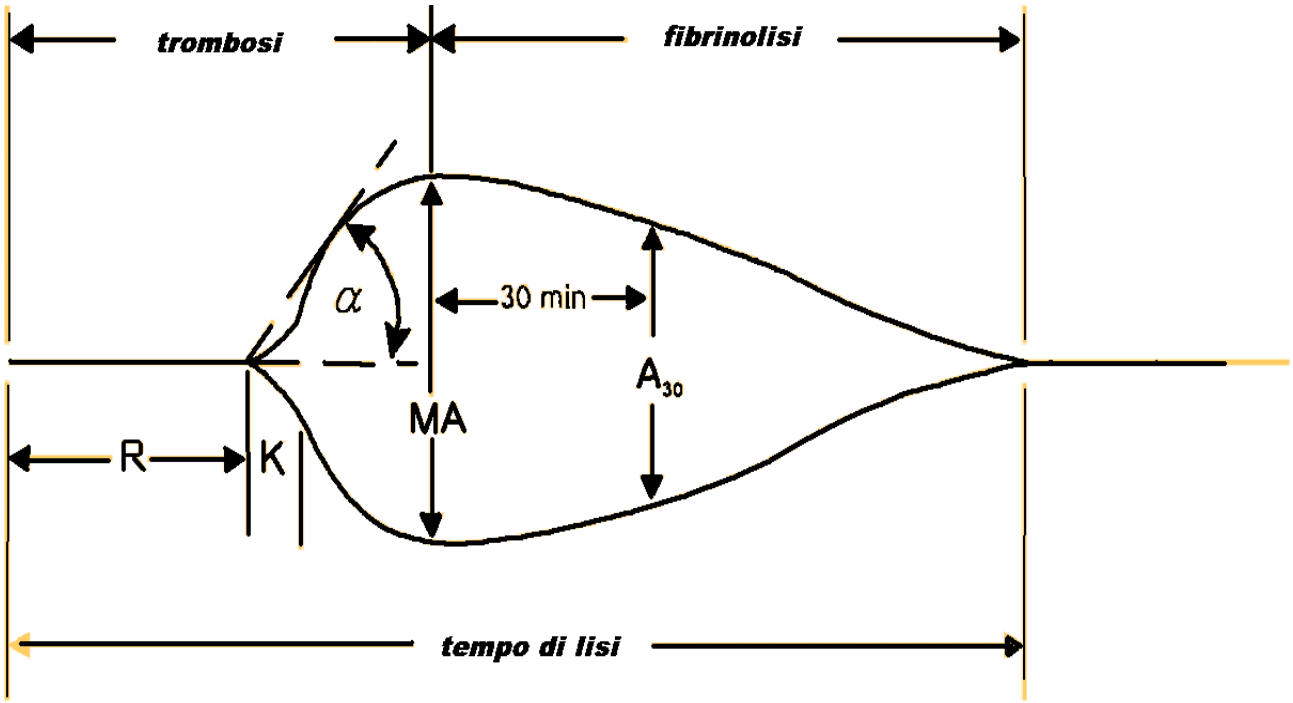


hypercoagulation/ prothrombotic =
short R - very large MA



Hypercoagulant with secondary fibrinolysis= first stage of DIC
Requires contrasting hypercoagulation to stop

second stage of DIC = hypocoagulant
long R - narrow MA


trombosi
fibrinolisi
α
30 min
A30
MA
R
K
tempo di lisi