*FTc is the duration of flow during systole. Normal for a resting healthy individual is 330 – 360 ms and is inversely related to resistance/afterload, where the most common cause of low FTc is hypovolaemia. A high FTc is seen in low resistance states.

"Changes in peripheral tone and blood flow re-distribution, especially in shock or in response to vasoactive drugs, affect the relationship between peripheral flow, peripheral pressure and central cardiac output. Thus the need to measure flow centrally."
M Singer, Professor of Intensive Care, UCLH. 2016.

What is happening? What do you do next? How do you intervene without doing harm?
Choice is usually fluids, inotropes and/or vasopressors?

Now add in central blood flow monitoring using the oesophageal Doppler monitor (ODM) and you are able to see if the patient is in a high or low cardiac output state. The treatment protocols for each of these two scenarios are very different despite the same BP!

*FTc is indicating a low resistance/afterload state
- Diagnosis here may be septic shock or other causes of vasodilation.
- Treatment: Challenge with fluid and/or vasopressors
  - Challenge separately to gauge CO and BP responses.

OR

*FTc is indicating an increase in resistance/afterload.
- Diagnosis here is any cause of vasoconstriction (where hypovolaemia is the most common)
- Treatment: Usually fluid first
  - Improvement?
    - Yes
    - More fluid as needed
  - No
    - More fluid if massive blood loss still present
    - Inotrope and consider dilator

VASOPRESSORS WILL OFTEN DECREASE SV ESPECIALLY IF CARDIAC FUNCTION IS POOR
"... the fundamental problems in the circulation derive from the fact that the supply of adequate amounts of blood to the organs of the body is the main purpose of the circulation and the pressures that are necessary to achieve it are of secondary importance; but the measurement of flow is difficult while that of pressure is easy so that our knowledge of flow is usually derivatory."

Karl Ludwig 1860s.

**BIBLIOGRAPHY AND FURTHER READING**


Deltex Medical Ltd [www.deltexmedical.com](http://www.deltexmedical.com) and [www.dopplerdecisiontree.info](http://www.dopplerdecisiontree.info)


NICE [http://guidance.nice.org.uk/MTG3](http://guidance.nice.org.uk/MTG3)


