



Last update on: **15/10/2010**

- ▶ [Event Selection](#)
- ▶ [General Information](#)
- ▶ [Welcome](#)
- ▶ [Day by Day Programme](#)
- ▶ [Saturday 16 October](#)
- ▶ [Sunday 17 October](#)
- ▶ [Monday 18 October](#)
- ▶ [Tuesday 19 October](#)
- ▶ [Advanced Search](#)
- ▶ [Presenter Search](#)

PRINT VERSION

▶ **Personal Planner**

**Login** My ESC

Username:

Password:

■ [Retrieve Password](#)  
■ [Create Account](#)



### Abstract: P332

#### Observations of pulse wave velocity prior to and following induced ventricular fibrillation and pacing in a porcine model

**Authors:**

R.C. Di Maio<sup>1</sup>, J. McLaughlin<sup>1</sup>, J.D. Allen<sup>2</sup>, J.M.C. Anderson<sup>1</sup>, A.A.J. Adgey<sup>3</sup>, <sup>1</sup>University of Ulster - Belfast - United Kingdom, <sup>2</sup>Queen's University - Belfast - United Kingdom, <sup>3</sup>Royal Victoria Hospital - Belfast - United Kingdom,

**Topic(s):**

Arrhythmias

**Citation:**

European Heart Journal Supplements ( 2010 ) 12 ( Supplement F ), F79

**Introduction:** When blood flows at higher pressures this in turn increases the strength of the palpable pulse. Pulse wave velocity (PWV) is the propagation of the deformation of the arterial wall. In this study we hoped to observe changes in PWV following the induction of pacing and VF as it was assumed that the amount of deformation decreases as the artery becomes less pulsatile due to diminished blood pressure when the patient is haemodynamically compromised.

**Methodology:** Each pig was anaesthetised with pentobarbitone and ventilated on room air. A temporary pacing line was fed into the right ventricle to induce VF. Defibrillation electrodes were placed over right upper sternum and left apex. All ICG, ECG and blood pressure recordings during Sinus Rhythm, VF and VT were taken via Notocord® system for subsequent analysis. The PWV data was recorded and displayed using Labview and exported to Excel for further analysis in 10 sec blocks. Measurements were taken directly from the exposed vessel between the distal and proximal end of the femoral artery at a distance of 11 cm. In order to confirm the validity of these results, the proximal end of the artery was clamped to assess the effects of interrupting blood flow on PWV.

**Results:** The PWV in 10 porcine models during sinus rhythm was  $3.04 \pm 0.2$  m/s. During pacing at 210 bpm the PWV decreased to  $2.10 \pm 0.1$  m/s. Following onset of VF the PWV dropped to below  $1 \pm 0.1$  m/s. Following removal of the arterial clamp during sinus rhythm PWV increased from 2.95 m/s to 5.58 m/s.

**Conclusion:** PWV is a potential physiological indicator of VT and VF onset. Pulse wave velocity decreases significantly following the onset of cardiac arrest and during simulated non-shockable VT. Results from clamping the proximal femoral artery indicate that the PWV readings were due to blood flow rather than localised effects. The system is small and lightweight and therefore ideal as a non-invasive tool in the diagnosis of life threatening VF and VT in an out-of-hospital setting.

[Contact Us](#) | [Terms & Conditions](#) | [Privacy](#)

Copyright © : 1997-2011 European Society of Cardiology. All rights reserved.