A236 - *The haemostatic effect and quantification of arterial and venous blood sampling on clot microstructure in sepsis patients: Assessment of a functional biomarker.*

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Introduction:
Blood sampling for coagulation assessment is often carried out in either arterial or venous samples in the Intensive Care Unit (ICU). There is controversy as to the accuracy of this method due to the inherent differences in physicochemical properties as well as the underlying effects of individual diseases in arterial and venous blood. Clot microstructure has shown to be a new biomarker (fractal dimension $d_f$) which encompasses the effects of diseases in all aspects of the coagulation system. In this study, we compared the effect of all these factors in venous and arterial blood to see if there is a difference in the clot microstructure and quality.

Methods:
45 patients admitted to a tertiary intensive care unit and busy teaching hospital were recruited. Arterial and venous blood was sampled from an arterial line and central venous catheter in situ from the same patient. Standard markers of coagulation (PT, aPTT, fibrinogen, full blood count), rotational thromboelastometry (ROTEM), whole blood impedance aggregometry and measured clot microstructure ($d_f$) were measured on both arterial and venous samples.

Results:
No significant difference was observed in standard laboratory markers, ROTEM and platelet aggregation between arterial and venous blood. There were no differences in the fractal dimension ($d_f$) between the arterial and venous blood samples ($d_f 1.658 \pm 0.10$ vs $1.654 \pm 0.08$ respectively, $p=0.830$).

Conclusion:
Samples from patients with critical illness give comparable results from either arterial or venous blood despite their underlying pathophysiological process or treatment. This confirms blood for coagulation testing can be taken from arterial or venous blood.

References: