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ABSTRACT N. PO33

WHOLE BLOOD HYPERCOAGULABLE PROFILES IN PATIENTS WITH RHEUMATOID ARTHRITIS.

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Background and aims: Rheumatoid arthritis (RA) is an autoimmune disease characterized by chronic systemic inflammation resulting in joint deformities and functional loss. Disease activity is accompanied by coagulation abnormalities potentially increasing the risk of venous and arterial thromboembolism. Whether these alterations are associated with a hypercoagulable profile remains a matter of debate. The aim of this case-control study was to evaluate hemostatic system functions in a group of RA patients, using whole blood rotational thromboelastometry and impedance aggregometry.

Methods: We assessed global coagulation status in 30 patients (M:F 3:27, age (mean±standard deviation, SD) 56.2±11.6 yrs) with RA (cases) treated with biological and disease-modifying anti-rheumatic drugs (DMARDs) and compared with 30 age- (±3 yrs) and sex-matched healthy individuals (controls), using whole blood rotational thromboelastometry (ROTEM®, Instrumentation Laboratory-Werfen) and whole blood multiple electrode aggregometry (Multiplate® Analyser, Roche Diagnostics) assays. Three standard ROTEM® assays named, INTEM, EXTEM, and FIBTEM were performed. The INTEM and EXTEM (ellagic acid and tissue factor activation, respectively) represent assays in which the intrinsic and the extrinsic coagulation pathways are triggered, respectively. The FIBTEM (tissue factor activation) assay was used for the assessment of the specific role of fibrinogen in clot formation following inhibition of the platelets by Cytochalasin D. Aggregation was assessed using adenosine diphosphate (ADP-test: 6.5 uM), thrombin receptor-activating peptide (TRAP-test: 32 uM) and arachidonic acid (ASPI-test: 0.5 mM).

Results: In cases disease duration was (mean±SD) 17.8±9.1 yrs and therapy duration 3.4±1.9 yrs. Thromboelastometry. Maximum clot firmness (MCF) in INTEM, EXTEM and FIBTEM was significantly higher in RA patients versus controls ($p < .001$ in all three comparisons) [Table 1]. Interestingly, MCF in INTEM and EXTEM was significantly higher in patients taking oral glucocorticoids at the time of blood sampling versus patients who were not ($p .011$ and $p .020$, respectively) [Table 1]. Impedance aggregometry. A significantly higher platelet aggregation was found in RA patients versus healthy controls in all assays considered [Table 1]. Finally, TRAP-induced platelet aggregation was significantly higher in patients taking oral glucocorticoids versus those who were not ($p .0006$) [Table 1].

Conclusion: Hypercoagulability in RA patients can be detected using thromboelastometry and impedance aggregometry. The clinical implication of these findings warrants further investigations.

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	CASES (n 30)	CONTROLS (n 30)	p value	CASES undergoing oral glucocorticoids (n 10)	CASES not undergoing oral glucocorticoids (n. 20)	p value
ROTEM®						
CT, sec						
INTEM	184±13	176±26	0.08	181±9	186±14	0.25
EXTEM	61±8	62±8	0.64	58±6	62±8	0.18
MCF, mm						
INTEM	64±4	57±4	<0.001	66±3	63±4	0.011
EXTEM	67±4	56±5	<0.001	69±3	66±4	0.020
FIBTEM	16±4	12±4	<0.001	17±4	16±4	0.38
Aggregometry						
ADP-test	83±20	65±13	<0.001	92±22	79±18	0.13
ASPI-test	76±21	64±13	0.012	84±22	71±20	0.14
TRAP-test	118±23	95±16	<0.001	132±15	111±24	0.006

CT: Clotting time, MCF: Maximum clot firmness