ASSOCIATION BETWEEN EXTRACELLULAR VESICLES (EVS) AND THROMBOSIS IN ANTIPHOSPHOLIPID SYNDROME

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Background: Extracellular Vesicles (EVs) are small vesicles derived from activated cells. EVs contain on their surface negatively charged phospholipids, such as phosphatidylserine, as well as active Tissue Factor (TF) and other procoagulant antigens, such as P-selectin, PSGL-1, and PECAM-1. The release of EVs may be a pathogenic mechanism associated with thrombotic complications in Antiphospholipid Syndrome (APS). Although there is evidence that levels of circulating EV may be elevated, it remains unclear which specific types of EVs are associated with thrombosis in patients with APS. **Aims:** To evaluate the association between circulating levels of EVs and thrombosis related to APS, as well as inflammation markers. **Methods:** Case-control study including patients with thrombotic APS (t-APS) and Healthy Controls (HC). EVs expressing the following antigens were quantified by flow cytometry: CD41 (platelet integrin alpha IIb), CD162 (P-selectin glycoprotein ligand 1), CD31 (platelet and endothelial cell adhesion molecule 1), CD142 (tissue factor), and CD62 (P-selectin). EV levels were compared between groups and correlated with APS clinical and inflammatory parameters. **Results:** A total of 115 participants were included, 69 patients with t-APS (42 primary and 27 secondary) and 46 HC. The median age was 39 years in both groups (controls: IQR 32–45; t-APS: IQR 31–51, $p = 0.75$). Cardiovascular risk factors were more common in t-APS patients, with 39.1% having hypertension and 42.0% having dyslipidemia, compared to 8.7% and 10.9%, respectively, in HC. Obesity was present in 30.4% of t-APS patients compared to 10.9% of HC. Among patients with t-APS, LAC were positive in 76.8%, aCL IgM and IgG in 23.2% and 40.6%, respectively, and anti-β2GPI IgM and IgG in 44.9% and 47.8%, respectively. Triple aPL positivity was observed in 14.5% of patients. None of the HC tested positive for aPL. The first thrombotic event was venous in 69.6% of t-APS patients and arterial in 30.4%. Recurrent thrombosis was observed in 52.2% of patients. Circulating levels of CD162+EV, CD31+EV, and CD41+EV were significantly higher in t-APS patients compared to controls ($p = 0.0004$, $p = 0.04$, and $p = 0.04$, respectively). No significant differences were observed for CD62P+EV or CD142+EV levels between patients and controls. Among APS subgroups, levels of CD41+EV were significantly higher in venous t-APS compared to arterial t-APS and controls ($p = 0.03$). Levels of CD41+EV were also higher in patients with multiple thrombosis compared to those with a single thrombotic event or controls ($p = 0.07$). No significant differences were found in the levels of CD162+EV, CD31+EV, CD62P+EV, CD142+EV, or CD142+CD41+EV among the t-APS subgroups. A correlation was observed between IL-1β and the levels of CD162+EV ($r = 0.69$; $p = 0.002$), CD31+EV ($r = 0.59$; $p = 0.01$), CD62P+EV ($r = 0.49$; $p = 0.04$), and CD142+EV($r = 0.47$; $p = 0.03$). There was no correlation between IL-1β and levels of CD41+EV ($r = 0.18$; $p = 0.4$) and CD142+CD41+EV ($r = 0.29$; $p = 0.2$) in t-APS. **Conclusions:** EVs expressing antigens related to platelet and endothelial cell activation and adhesion, as well as platelet-leukocyte interaction, were associated with thrombosis related to APS. The correlation between EV levels and IL-1β levels further underscore the association between EV release and thromboinflammatory responses in APS. Our results demonstrate the involvement of EVs in the interaction between inflammation and thrombosis in APS.

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ESTUDO COMPARATIVO DO TESTE DE TEMPO DE COAGULAÇÃO ATIVADO (TCA) ENTRE OS ANALISADORES ISTAT ACT-K E MCA PLUS NO MONITORAMENTO DE PACIENTES HEPARINIZADOS

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Introdução: O Tempo de Coagulação Ativada (TCA) é o teste de escolha para monitorar a heparina não fracionada em doses altas utilizadas durante cirurgias cardíacas e vasculares. Ele fornece resultados rápidos e precisos, permitindo ajustes imediatos na dosagem à beira do leito. Embora o (Tempo de Tromboplastina Parcial Ativado) TTPA também possa ser usado, ele pode não ser sensível o suficiente para altas doses de heparina e requer processamento laboratorial. O TCA é mais eficaz para monitoramento de anticoagulação intensa, mesmo sem medir diretamente o nível de heparina. **Objetivos:** O objetivo principal deste estudo é validar o analisador POCT I-STAT ACT-K da Abbott para realizar o teste de TCA, comparando seus resultados com o equipamento MCA Plus da Fundação Abilio Jatene, já utilizado em nosso serviço. Buscamos verificar a correlação entre os resultados obtidos pelos dois equipamentos. **Métodos:** Foram avaliadas 22 amostras de sangue total. Os testes foram realizados utilizando tanto o equipamento MCA Plus quanto o analisador I-STAT ACT-K. Os resultados foram comparados estatisticamente utilizando a correlação de Pearson. **Resultados:** O comparativo entre as amostras de sangue total processadas nos dois equipamentos revelou uma correlação significativa de 0,96, com um coeficiente de determinação (R2) de 0,93. Esses resultados indicam uma alta concordância entre os resultados obtidos pelo analisador I-STAT ACT-K da Abbott e pelo equipamento de referência MCA Plus da Fundação Abilio Jatene. **Conclusão:** Com base nos resultados obtidos, podemos concluir que o analisador POCT I-STAT ACT-K da Abbott demonstrou um desempenho semelhante ao equipamento utilizado já em rotina em nosso serviço. Este estudo reforça a confiabilidade do analisador I-STAT ACT-K para a medição do Tempo de Coagulação Ativada em pacientes heparinizados.

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