The diagnostic value of MPV and D-dimer for acute DVT

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I have read the article published by Canan et al. [1] with a great interest. They compared the plasma levels of mean platelet volume (MPV) and D-Dimer in patients with (deep venous thromboembolism) DVT and in patients without DVT. They have shown that MPV and D-Dimer was significantly higher in patients with DVT than in those without DVT. They speculated that MPV, measured at the time of diagnosis, is higher in patients presenting with an acute DVT and a combination of MPV and D-dimer has higher specificity to exclude deep venous thrombosis than using D-dimer alone. This is an interesting study. On the other hand, we want to make minor criticism about this study from methodological aspect.

Firstly, in methods section biochemical analysis part is not clear. In their study, blood was collected into a vacutainer tube, containing EDTA for MPV measurement. However, they did not mention the time interval between blood sampling and blood analysis. This is very important for tubes containing EDTA. As we know, platelets exhibit a time-dependent swelling when blood samples are anticoagulated with ethylenediaminetetraacetic acid (EDTA), while this swelling does not occur in the presence of citrate [2]. With impedance counting, the MPV increases over time as platelets swell in EDTA, with increases of 7.9 % within 30 min having been reported and an overall increase of 13.4 % over 24 h, although the majority of this increase occurs within the first 6 h [3]. The recommended an optimal measuring time of MPV is 120 min after venipuncture [4]. For reliable MPV measurement, the potential influence of anticoagulant on the MPV must be carefully controlled,

either using an alternative anticoagulant (such as citrate) or standardizing the time delay between sampling and analysis (less than 2 h). This situation is not clear in study.

Secondly, there are significant associations of MPV with diabetes mellitus, prediabetes, smoking, hypertension, hypercholesterolemia, obesity, coronary heart disease, metabolic syndrome, statin and some antihypertensive use and atrial fibrillation [5]. These factors can greatly influence the MPV values. They did not mention about these factors in patients and control subjects in two groups. The factors must also have been adjusted in two groups. Only comparing blood parameters can give us wrong results.

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