Platelet-Specific Proteins in Myeloproliferative Disorders

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We have read the paper by Rueda et al. [1], reporting high values of platelet-specific proteins in myeloproliferative diseases (MPD). We are afraid that the levels of βTG and PF4 observed by the authors in platelet poor plasma are entirely artifactual, due to in vitro platelet activation. The use of an appropriate anticoagulant mixture [2] and sample processing at ultra-high centrifugation speed [3] are crucial for correct analysis. Using the ‘Edinburgh mixture’ and immediate 48,000 g centrifugation, we have previously demonstrated that PF4 levels rigorously approach zero in MPD [4], as well as in normals. At the same time, Lane et al. [5] showed that plasma levels of PF4 in MPD are not different from controls. 3.8% trisodium citrate, as used by Rueda et al., has deleterious effects on in vitro platelet activation [2,3] and centrifuging at 20,000 g is useless, once α-granule release has been allowed by the 10-min 200 g centrifugation. Inappropriate sample processing is confirmed by the very high values of βTG reported in normals, which are almost 10 times higher as compared to those reported by Files et al. [3] and ourselves [4, 6]. The authors show to be aware about the possibility of artifactual in vitro elevations due to incorrect handling, and state that this is not the case in their work, since no statistical difference was observed in patients affected with secondary thrombocytosis (ST) as compared to normal controls. This probably simply means that platelets in MPD are more susceptible to improper handling. Moreover, values in ST patients are still almost double normal and the lack of statistically significant difference could be due only to the small number of tested patients. Finally, if any variation in βTG and PF4 levels is surmised, each value should be normalized for the respective platelet count, in order to avoid higher protein values to simply match the higher platelet counts characteristic of MPD. The conclusions exposed by Rueda et al. remain potentially very interesting, but they should not be based on data which lack the appropriate background, while measurements should be performed under optimal experimental conditions.

References