

Metabolic resting recovers platelets activity and viability

Bahram A. Badlou

BBAdvies and Research, The Netherlands

During transportation, platelet (PLT) concentrates (PC) usually undergo a long period without agitation (Metabolic rest). Whether this interruption of PCs recovers quality and viability or, contrariwise, has deleterious effects on PC stored for 48 hours (h) is not known.

The aim of this study was to investigate the effects of metabolic resting versus continue agitation of PC stored for 48 h.

PC were prepared from platelet-rich plasma and stored in permeable bags in a shaker/incubator for 42 h at RT. Then, simply by stopping the agitator, the PCs remained stationary without agitation for 6 h (WCA6h), prior to transfusion. In vitro measurements of PLT quality were carried out just after completion of the resting period and the results were compared with those of PC continuously agitated in the same day (the control group, CA6h). The in vitro variables measured were swirling, ristocetin-induced aggregation (GPIb-related function), LDH release, PF4 release and P-selectin expression (activation markers).

The mean PLT counts of CA6h and WCA6h PCs were not statistically different ($P=0.5$). Likewise, the mean pH values were not significantly different: WCA6h (7.1 ± 0.08) and CA6h (7.2 ± 0.1) ($P=0.300$). Although ristocetin-induced aggregation did not differ significantly between CA6h (79.2 ± 4.4) and WCA6h (66.6 ± 28.5), WCA6h showed significantly less PFA release and lower P-selectin expression ($P=0.006$).

We observed that PC stored under agitation for 42 h at RT and then rested for 6 h had better preserved pH, swirling and LDH and less PLT activation than PC kept under continuous agitation.

Biography

Bahram A. Badlou has completed his Ph.D. in 2006 from the Medicine Faculty of Utrecht University (UMCU) and postdoctoral studies from Medical Hospital University of Groningen (UMCG) School of Medicine in The Netherlands. He is the CEO of BBAdvies and Research, a premier private research and development organization. He has published more than 12 papers in reputed journals and serving as an editorial board member of Blood Transfusion (2010-2013), and as Reviewer for Thrombosis and Haemostasis Journal (2013), Transfusion (2003-2007). He is awarded as one of the world's foremost achievers in his field, Marquis Who's Who book 2009-2010, USA.

bbadlou@casema.nl