

PLATELET COUNT VARIABILITY DURING HEMODIALYSIS

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Recent studies have underscored the importance of monitoring platelet counts during dialysis, especially in patients suspected of heparin-induced thrombocytopenia. It is generally believed that platelet counts are relatively stable over time during dialysis and that a significant change must be attributed to external factors; such as drugs, infection, blood loss or immune disease, to name a few. However, the impact of dialysis or dialyzer type on platelet counts over time has not been previously studied. The aim of this current study was to assess the degree of variability in platelet counts over time (Var-OT) in a large cohort of dialysis patients on the same dialyzer. In addition, the impact on platelet counts of a polysulfone dialyzer (Optiflux, Fresenius Medical Care-NA) before and after change to e-beam sterilization (Var-eB) was also studied. Data from 4353 prevalent patients undergoing chronic outpatient dialysis between January 2004 and October of 2007 were reviewed. Only patients with three or more platelet measurements during each study period were included in the retrospective analysis. Data is presented as mean \pm SEM. There was a Gaussian distribution of platelet counts in this large database with a mean of 218.7 ± 1.0 $10^3/\text{mc}$ (range 32.3 to 784.0). In the first study, variability over time (Var-OT) was analyzed using the nine month period 1/1/04 – 9/30/04 versus the nine months 1/1/05 – 9/30/05 in 2066 patients. An increase in platelet count was observed in 42% of patients (198.8 ± 0.1 vs. 223.7 ± 0.2 , $p \leq 0.01$) with a max increase of 179 per patient. A decrease in platelet count was observed in 57% of the patients (221.4 ± 0.1 vs. 191.7 ± 0.1 , $p \leq 0.01$) with a max decrease of 263 per patient. The second study (Var-eB) included 2,043 patients who between Nov 2005 and March 2006 switched to e-beam sterilized dialyzers. When compared to platelet counts before the change to e-beam sterilization, an increase in counts was observed in 50% of patients (199.1 ± 0.1 vs. 227.6 ± 0.1 , $p \leq 0.01$) with a max increase of 458 per patient. A decrease in platelet count was observed in 49% of the patients (217.0 ± 0.1 vs. 187.6 ± 0.1 , $p \leq 0.01$) with a max decrease of 195 per patient. **CONCLUSION:** These findings underscore the extreme variability in platelet count in patients undergoing chronic outpatient dialysis. A change to an e-beam sterilized dialyzer had no apparent impact on this degree of variability.