



Inflammatory changes in Ex-Situ Machine perfusion with Cytokines adsorption



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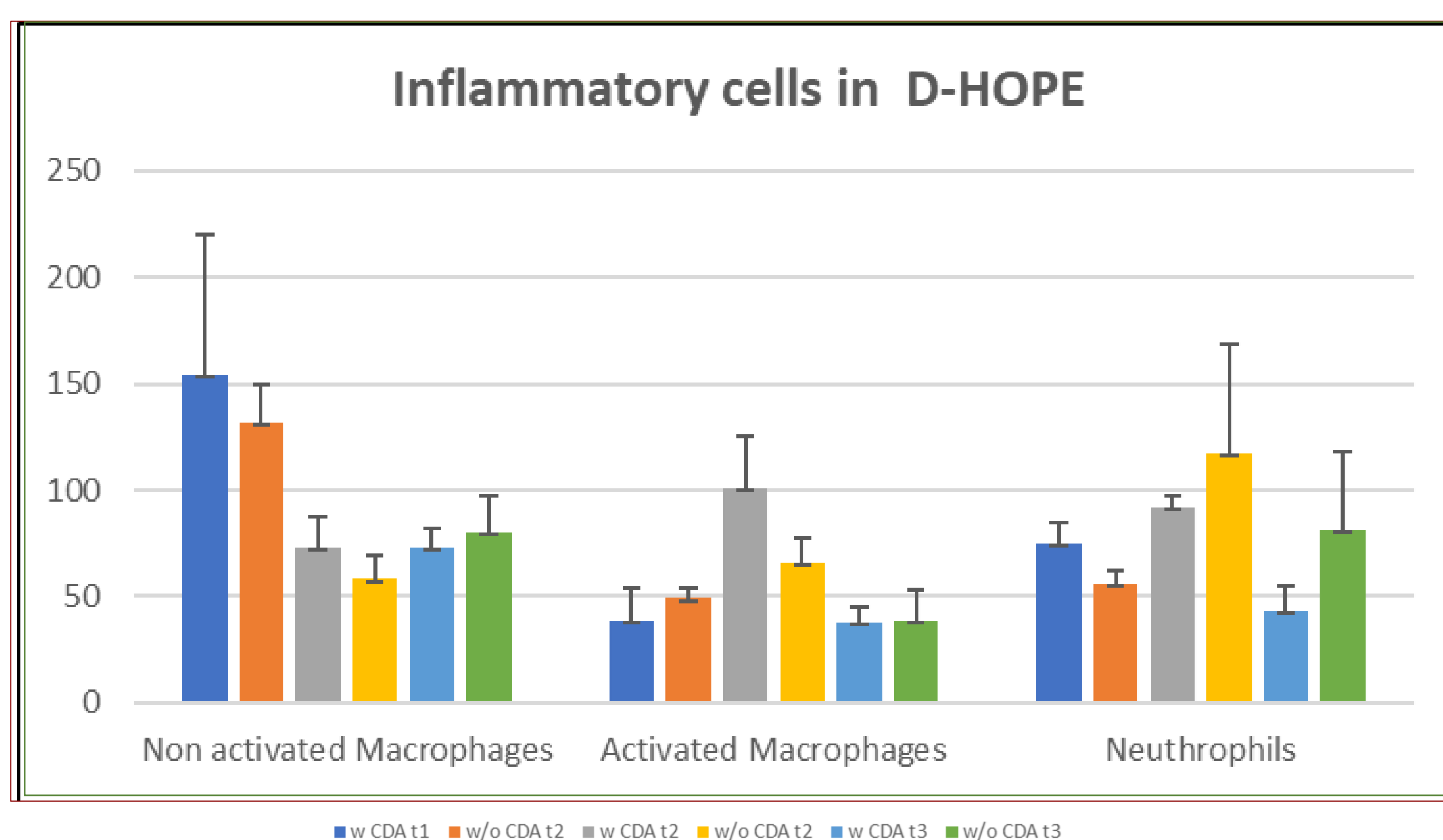
Background

MP helped the reduction of grafts discard rate and the testing of grafts' function before transplantation. Cytokines are known to be involved in IRI. We have recently explored the predictive role and the impact of these inflammatory mediators levels during MP on graft viability and post-LT complications, showing a positive correlation between cytokines levels (IL-6, IL-10, TNFa), graft failure and post-operative outcomes. Afterwords, we applied a dedicated immunomodulation technology to reduce these cytokines levels by means of inflammatory mediators adsorption through apheresis, in order to restore inflammatory response. The aim of the study is the characterization inflammatory and morphological changes in MP.

Methods

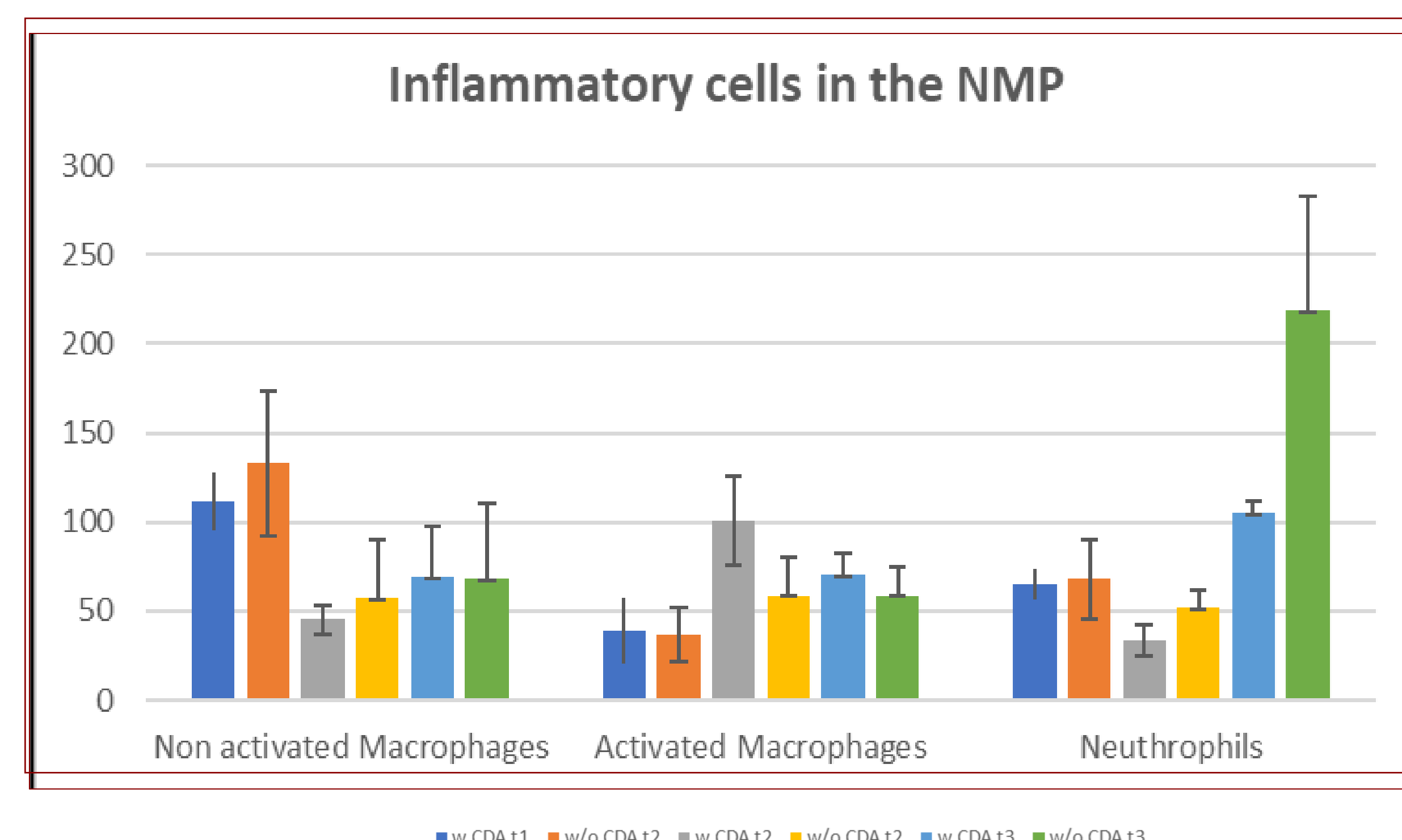
We selected 12 grafts, already suitable for transplantation, randomizing them to hypothermic (D-HOPE) and normothermic (NMP) treatments using PerLife system with PerSorb for CDA: D-HOPE+ CDA vs D-HOPE+Non-CDA vs NMP+CDA vs NMP+NO-CDA. All D-HOPE and NMP procedures were performed according to routine MP protocols. We compared the four groups assessing perfusate cytokines (IL-1, IL-6, IL-10 and TNF- α) levels (CKL) at different MP timepoints and performing biopsies on the back table (t1), during MP (t2) and at the end of intervention (t3).

Results



In D-HOPE, grafts expressed lower CKL than in NMP.

Higher inflammatory status was observed in NMP, with increased



Conclusions

Perfusate purification through adsorption of inflammatory mediators in MP is safe, feasible and effective. The prevention/limitation of inflammatory cascade may improve graft performance during MP and post-transplant outcome. Further studies are needed to explore short- and long-term clinical impacts of this therapeutic strategy.