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### Introduction

The complex inflammation processes that can take place in the organs during the donation and transplantation steps can lead to both accumulation of the inflammatory mediators in the organ and the endogenous release of those molecules by the organ during the ex-situ treatments resulting in poor transplant outcomes. These mechanisms can be furtherly amplified during machine perfusion, due to the auto-alimentation inflammatory loop taking place with the recirculation of the perfusate and the production/release of the inflammatory mediators by the organ: these inflammatory mediators, such as cytokines, complement and coagulation factors, can be the trigger and the alimentation of important inflammatory responses, leading to an overwhelming inflammation and, consequently, aggravating ischemia-reperfusion injury (IRI). The purpose of this study is a preliminary characterization of inflammatory mediators and their adsorption by apheresis applied during the NMP treatment in an ECD kidney for transplantation.

### Methods

Right kidney from an ECD donor (75-year-old female; cerebrovascular accident; haemodynamic instability; extreme hypotension) underwent 320 NMP treatment with PerLife using PerSorb for inflammatory mediators' adsorption. Perfusate samples were collected hourly until the endo of the treatment. To characterize the efficacy of the adsorption pre- and post- PerSorb sampling was performed.

### Results

After NMP, the kidney was successfully transplanted in a 74-year-old woman. The cytokines characterization is showed in *Figure 1*, revealing a marked increase during the treatment. PerSorb actively adsorbed 19.232.600 pg of cytokines, mostly IL-6, IL-8, MCP1, GCSF, RANTES, HGF, TNFa, in a concentration-dependent mode.

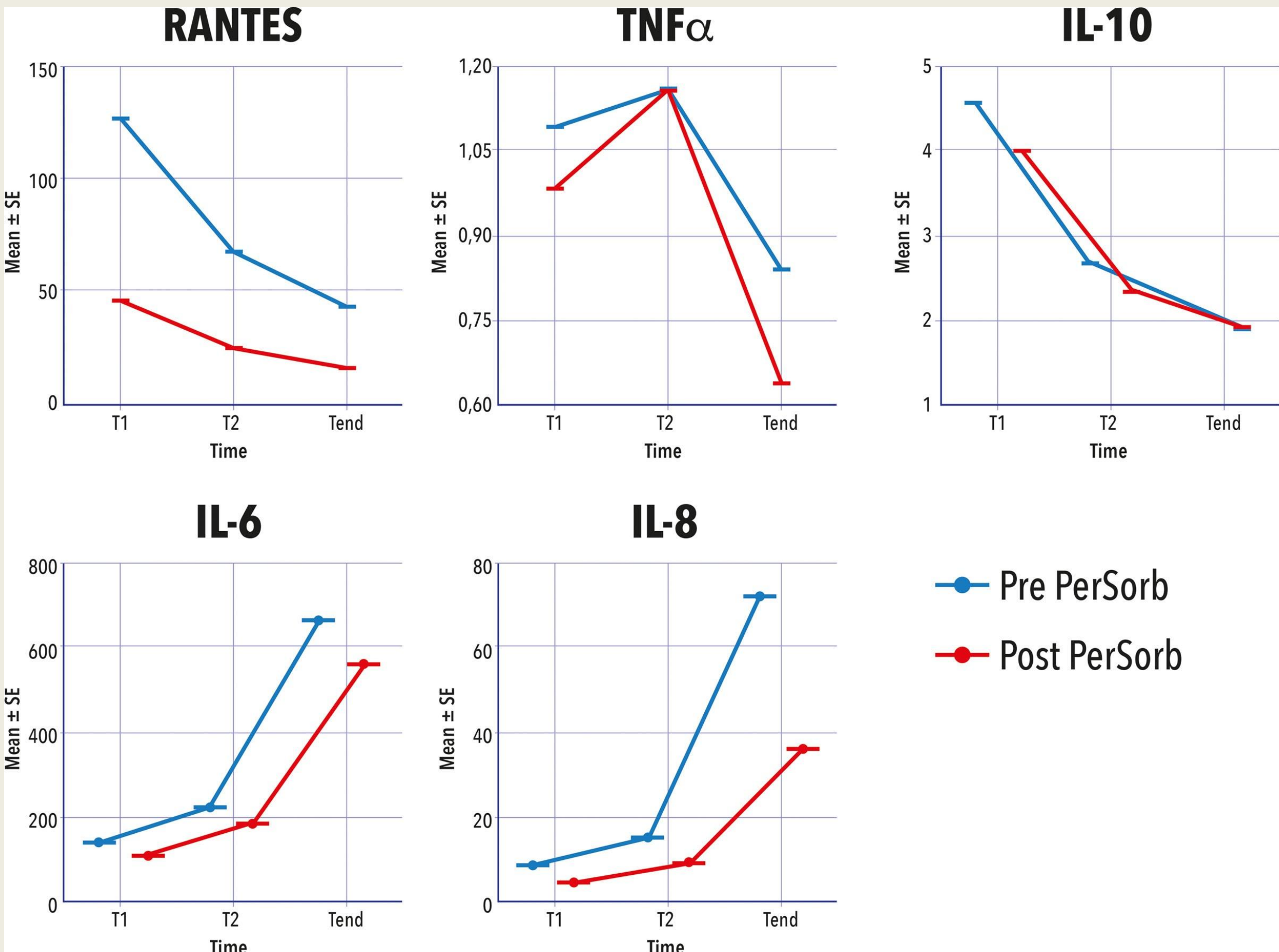


Figure 1: Cytokines concentration during the ex-situ treatment

### Conclusions

Inflammatory mediators significantly increased during NMP. At the same time, PerSorb® remarkably and efficiently reduced cytokine levels resulting in optimal organ perfusion. Further studies are needed to deeply explore the clinical impact of this immunomodulation therapy in NMP.