

# EVALUATION OF CYTOKINE LEVELS

&

## GRAFT OUTCOME

AMONG RENAL TRANSPLANT RECIPIENT  
WITH RELATED LIVING DONORS



CHANGING & IMPROVING  
SOUTH AFRICA'S TRANSPLANT FUTURE

**28<sup>th</sup> SATS & 5<sup>th</sup> SATiBA**  
CONGRESS

**6 - 8 September 2019**

KRYSTAL BEACH HOTEL  
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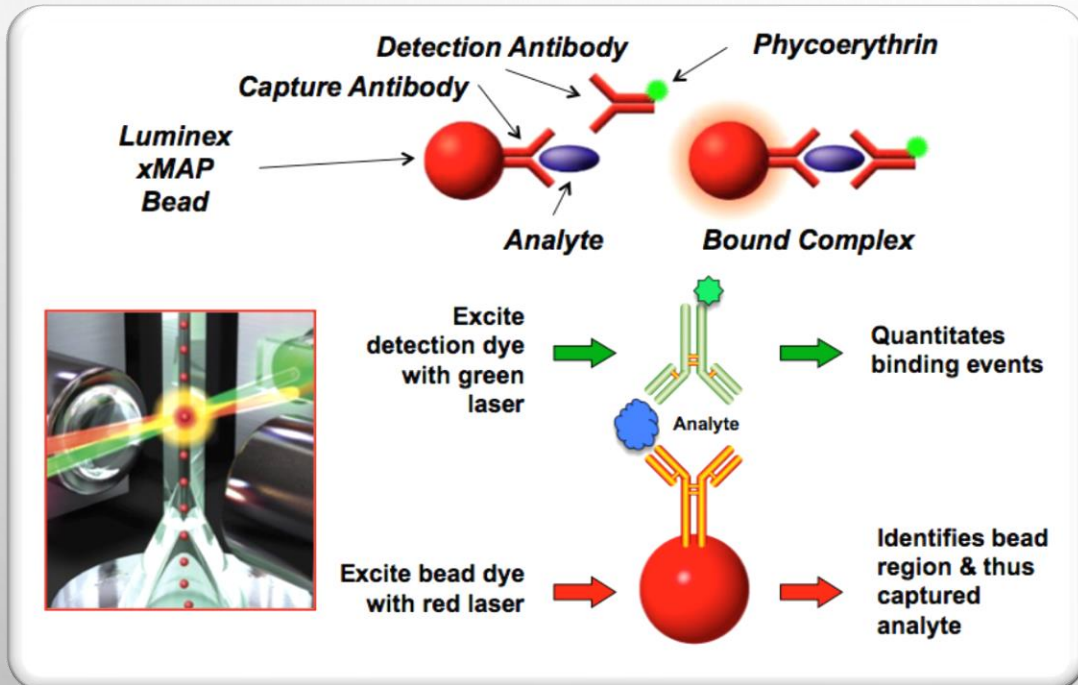
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NATIONAL HEALTH  
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# SCOPE OF PROJECT



- **BEST PRACTICE FOR LRD**

- CROSSMATCHING

- MIXED LYMPHOCYTE CULTURES

- BIOMARKER IDENTIFICATION







# INTRODUCTION

- CYTOKINES PLAY A **CRITICAL ROLE** IN THE INFLAMMATORY PROCESS OF THE ALLOIMMUNE RESPONSE LEADING TO **REJECTION**.
- MEASUREMENT OF CYTOKINE LEVELS PRE-TRANSPLANTATION (PLASMA AND SUPERNATANT OF MLC) INVESTIGATED
- TO ESTABLISH
  - **RELATIONSHIP** TO GRAFT OUTCOME AND;
  - WHETHER ELEVATED CYTOKINE LEVELS COULD BE UTILISED AS **EARLY PREDICTORS** OF GRAFT REJECTION





# METHODS

- **15** PATIENTS AND THEIR LRD + **4** HEALTHY CONTROL
- A **MULTIPLEX** CYTOKINE DETECTION KIT WAS USED WITH A TOTAL OF **27 CYTOKINES** PER SAMPLE.
- THE AVERAGE **AGE** WAS **39.9**  $\pm$  13.4 YEARS (RANGE: 21 - 61).
- AVERAGE **DURATION** OF RENAL REPLACEMENT THERAPY BEFORE TX WAS **23.5**  $\pm$  10.5 MONTHS (RANGE: 6 - 46).
- BOTH **CIRCULATORY** AS WELL AS **MLC SUPERNATANT** CYTOKINES WAS MEASURED




# MEDICAL HISTORY

Medical history	Recipients n (%)
Diabetes mellitus	1 (7)
Hypertension	12 (80)
Hyperuricemia	2 (13)
Systemic lupus erythematosus (SLE)	2 (13)
Hypothyroidism	2 (13)
Hypercholesterolemia	5 (33)
Unknown	1 (7)
Dialysis (HD/PD)	9/6

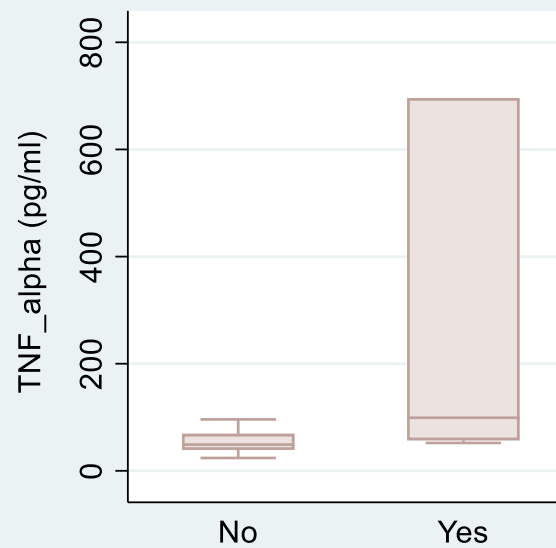
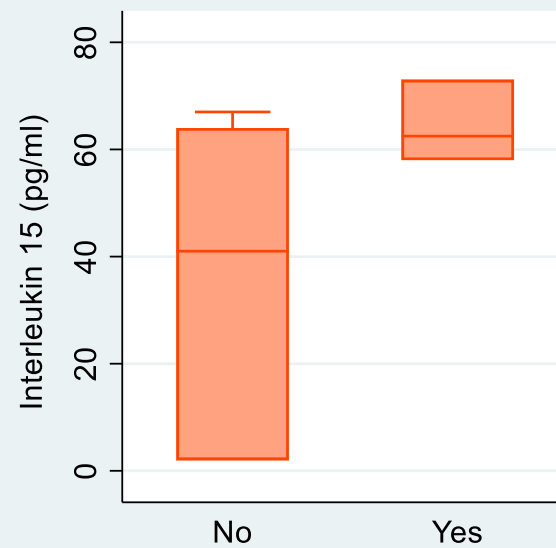
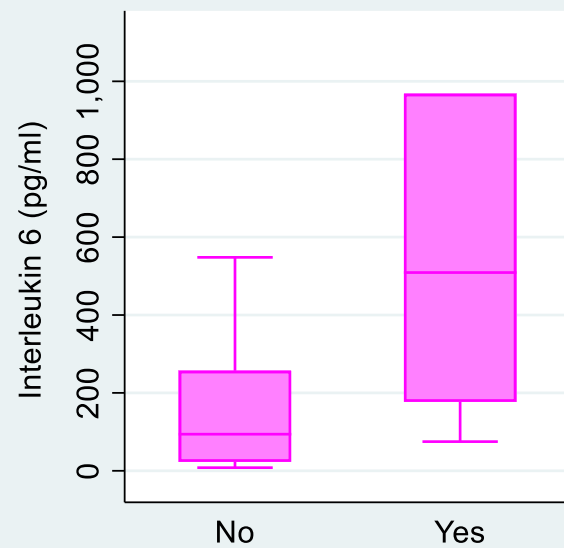
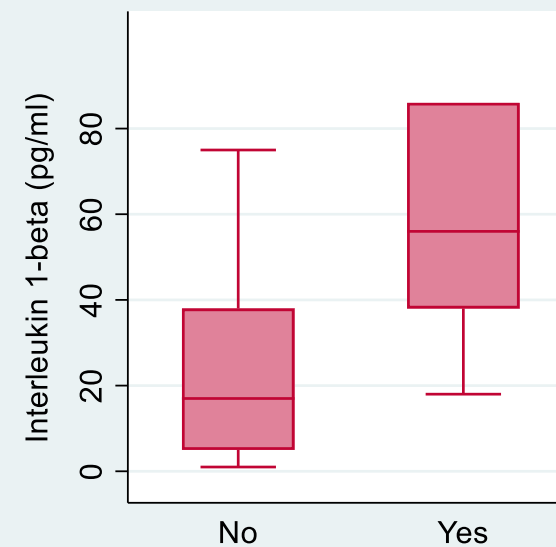
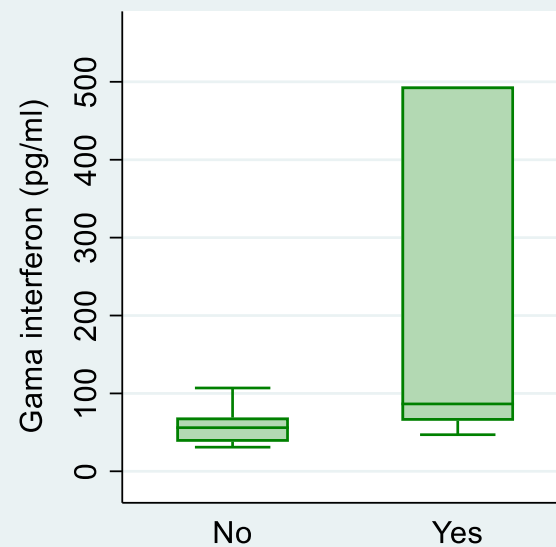
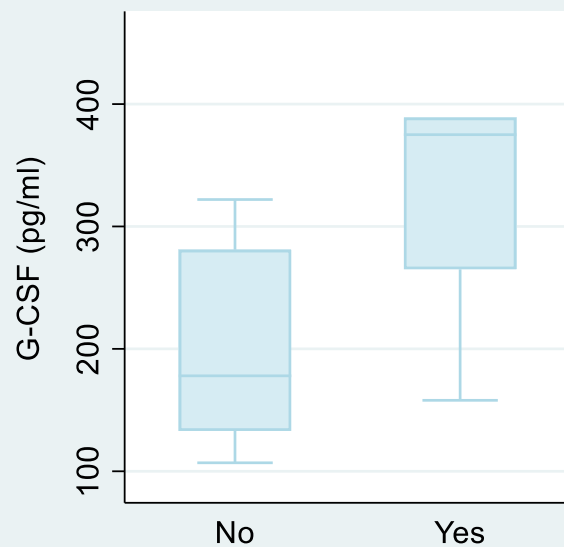


# RESULTS

- Two groups
    - those who rejected ( $n=3$ ) the renal transplant (G1) and
    - those with a successful graft ( $n=12$ ) G0.
  - Higher median concentrations of all cytokines were observed for G1, in both the plasma and supernatants of the MLC.
  - The **eosinophil chemotactic protein, eotaxin** ( $p=0.03$ ) was higher in G1 compared to G0.
- 



# Cytokines elevated in kidney rejection







- **Eotaxin** has been reported previously to be significantly secreted in **chronic allograft rejection** - animal models (Dosanjh, 2014).
- Eotaxin plays an important role in the recruitment of **eosinophils**.
- Eosinophils have also been shown to play a crucial role in the **mechanism of injury during** adverse prognosis on **graft rejection** episodes (Almirall et al., 1993; Jezior et al., 2003; Bush et al., 2016; Yuvaraj et al., 2017).



# CONCLUSIONS

- This study suggest that:
- Higher median concentration of **anti-inflammatory cytokines** may be indicative of the initiation of **kidney rejection** episodes.
- Furthermore, **eotaxin** may be utilised as **biomarker of rejection**.



# THANK YOU

- **NHLS TRUST** FOR FUNDING THE STUDY
- SR **LYDIA BOTES** – JACARANDA HOSPITAL



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