**The BRIC Study - Biomarkers and Renal Patients in Covid**

**Biomarkers to predict outcomes and improve survival in patients with renal replacement therapy and COVID-19**

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**Background**

There is an urgent need to understand how patients with end-stage renal failure (ESRF) and renal replacement therapy (RRT), such as renal transplantation or haemodialysis, respond to COVID-19 infection. These vulnerable patients have substantially higher mortality rates from COVID-19 than the general population. It is not clear why some patients recover better than others. Nor is it certain how best to tailor treatment and immunosuppressive regimens during infection. Preliminary studies indicate that pro-inflammatory cytokines in peripheral blood may be associated with increased ITU admission and mortality.

**Aims**

This project aims to identify biomarkers in peripheral blood that can be associated with clinical outcomes in patients with ESRF who either have a renal transplant or haemodialysis as their RRT, in comparison to COVID-19-positive patients without these underlying health conditions.Such biomarkers may help us understand why some ESRF patients with RRT have extremely poor outcomes when infected with COVID-19. This will help to direct effective and accelerated treatment of such vulnerable patients.

**How to get involved**

We encourage anyone with an interest in renal medicine or transplantation to get in contact. Multi-centre data collection will be vital to this study. Please email Sushma Shankar (sushma.shankar@nds.ox.ac.uk).

**Primary Objective**

* To identify an immunological signature in COVID-19-infected patients with a renal transplant or haemodialysis which can be associated with clinical outcome

**Secondary Objectives**

* To monitor the development of protective antibody responses to COVID-19 in association with clinical outcomes
* To determine the modification of immunosuppression in association with clinical outcome in renal transplant patients with COVID-19
* To determine the overall survival of COVID-19-infected patients with a renal transplant compared to those with haemodialysis
* To determine the use of best supportive care

**Methodology**

Clinical Data:Clinical data is being collected utilising an online REDCap data platform. **Multiple centres can easily contribute to this section of the study.**

Blood Samples: Collected at day 1, 3 and 9 following a COVID-19 positive PCR result

* Multiplex assays on serum to measure pro-inflammatory cytokines and identify serum biomarkers
* RNA multiplex analysis of whole blood will highlight intracellular immunological changes in response to COVID-19 infection, and can track viral load.
* ELISA-assessment of COVID-19-specific IgM and IgG serum levels