Using Biomarkers in developing Precision Medicine in Idiopathic Nephrotic Syndrome

Idiopathic nephrotic syndrome is an umbrella term wherein the glomerulus (functional unit of kidney; with a million in each kidney) and its cells in kidney are affected. Two diseases called MCD & FSGS are on a spectrum leading to similar symptoms, and diagnosis is made on kidney biopsy. However, treatment response and progression to end stage kidney disease (ESKD) in patients varies widely. Often it is unclear as to what triggers the disease and currently, there are no clear ways of predicting the prognoses. The disease can reappear after transplantation.

Rare cases of vaccine associated nephrotic syndrome were reported in past. During Covid-19 (C-19) epidemic we identified a rare association of NS after C-19 vaccination. Developing NS soon after the vaccine suggests a clear trigger. Even before the C-19 pandemic, we have been collecting deep clinical phenotype, blood/urine samples in patients with NS to be able to study the association of biological processes with the disease. This exercise of deep phenotyping & bio-sampling is approved under the Manchester Renal Biobank Ethics.

We aim to study the association of specific multiple biomarkers in predicting prognosis in iNS. This is an exploratory study and to our knowledge is the first in kind to correlate wide range of biomarkers with the clinical syndrome with benefit of personalised medicine. The strength of the study is imparted by a) serial bio-samples, b) association of specific trigger in proportion of patients and c) the Glomerular Disease Working group in Manchester that includes clinicians interested in NS, researchers and scientists studying different techniques. This provides us with a proper platform to study the disease in depth and we believe that this work would pave the way for further studies that could unravel hitherto unknown phenomena, which will underpin better prognostication and personalised treatment.