

P206

## P206 -A comparison between MDRD eGFR, creatinine clearance and kidney volume in renal transplant patients

Dr Mustakim Khandaker<sup>1</sup>, Dr Lamis Taha<sup>1</sup>, Dr Michael Schulz<sup>1</sup>

<sup>1</sup>Royal Liverpool University Hospital, Liverpool, United Kingdom

### Introduction

There are several methods of assessing renal function. The most commonly used methods in the UK are calculating eGFR using MDRD formula and measuring Creatinine Clearance (CrCl) using 24hr urine collections.

There is no agreed standard for measuring kidney function post kidney transplantation. In clinics, the most common method of eGFR calculation is MDRD although this formula is not validated for Transplant patients. The aim of this retrospective study was to evaluate a possible correlation in values of eGFR and CrCl over a period of 6 months and to establish which method of kidney function assessment may be appropriate for estimating kidney function in transplanted patients. The function of a kidney transplant may also be affected by the correlation of volume of the kidney transplanted - recipient body size and we tried to identify if there was any correlation between these variables.

### Methods

We retrospectively reviewed 40 renal transplant recipients. We looked at the serum eGFR (calculated via MDRD method) and creatinine clearance at 24 hours post-transplantation, 4 weeks post-transplantation, 12 weeks post-transplantation and 6 months post-transplantation. Evaluation of kidney volume by ultrasonography was calculated using the formula (renal length x renal width x antero-posterior diameter). Regression analysis was performed using ANOVA linear regression.

### Results

Our results show that there is a linear relationship between MDRD eGFR and 24hr CrCl. It appears from our results that over a period of 6 months the correlation between the two variables decreases. Initially after there is a strong positive correlation with a p-value <0.005, at 4 weeks post-transplant the p value is <0.005, at 12 weeks post-transplant the p-value is 0.02, however at 6 months post-transplant the p value is 0.9. Consequently, the linear regression decreases as time increases from a value with r<sup>2</sup> 0.67, 0.48, 0.27 and 0.0006.

From our data; post renal transplantation MDRD eGFR and creatinine clearance measurements are comparable and there is a strong correlation between values. The eGFR indicates lower level of renal function compared to the creatinine clearance earlier on and this is statistically significant. At 6 months the correlation between the two values becomes less statistically significant and become more comparable. MDRD eGFR does not account for body mass whereas creatinine clearance does. Assuming that following a successful renal transplantation the patient's diet and body mass improves quickly as most patients would be clinically well, MDRD may initially underestimate GFR.

There appears to be no correlation between transplanted kidney volume and kidney function.

### Conclusions

From our data there is a statistical difference in eGFR and creatinine clearance values early after kidney transplant and potentially MDRD eGFR may be underestimating actual GFR in which case creatinine clearance would be a more appropriate measure of renal function. Creatinine clearance and eGFR become more comparable in value with time so for long term follow up, it may be appropriate to use either measurement to estimate kidney function. There appears to be no relationship between transplanted kidney function and kidney volume.