Methods: This is a retrospective cohort study using the medical records of 300 patients attending the outpatient renal clinic department at Inkosi Albert Luthuli Central Hospital for the period January 2007 – December 2009. The average patient age was 43 years. The patients were followed up for 24 months following their first clinic visit. Socio-demographic (age sex, residence) and clinical characteristics including eGFR, blood pressure, BMI (body mass index), proteinuria, haemoglobin, cholesterolemia, uricaemia were recorded. Treatments received including ACE inhibitors, statins, non-dihydropyridine calcium channel blockers (NDCCB), Beta blockers were also recorded. Patients were divided into 2 outcome categories, according to changes in eGFR (estimated glomerular filtration rate): patients with eGFR decline of 1ml/min/year or less and those with accelerated eGFR decline(>1ml/min/year). Data analysis using SPSS version 23 (IBM) comprised of descriptive tests and logistic regression analysis (expressed as OR (odd ratio) and confidence interval) for the study of the association of above characteristics with patients' outcome. Receiver operator characteristics (ROC) analysis was performed to determine cut off values associated with accelerate progression of CKD.
Results: ACE inhibition was used by 92% of patients. Uricaemia and BMI were associated with worsening of eGFR decline OR: 1.012[1.003-1.020] p=0.007 and OR: 3.775[1.116-12.766], p=0.033 respectively. The use of carvedilol and NDCCB was associated with a reduction of the decline of eGFR with OR: 0.144[0.207-0.953] p=0.037 and OR: 0.543[0.329-0.884], p=0.016 respectively. No significant association was found between eGFR change and daily proteinuria or cholesterolemia. The cut off value for uric acid was 4.15 micromol/l. The aetiology of the chronic kidney disease did not affect rate of progression of eGFR. In addition, the rate of progression was not dependent on eGFR. Patients with high uric acid levels were more prone to progression of chronic kidney disease irrespective of the aetiology.
Conclusions: These results suggest that beyond ACE inhibition, the control of uricaemia below the target of 4.15 micromol/l, BMI, and use of carvedilol and NDCCB may lead to a further delay in the progression of chronic kidney disease in KwaZulu-Natal.

SAT-091

HISTONE DEACETYLASE 5 (HDAC5)-BMP-7 AXIS REGULATES EPITHELIAL MESENCHYMAL TRANSITION IN RENAL TUBULAR EPITHELIAL CELLS

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Introduction: BMP-7 downregulation has been shown in both human and mouse renal fibrosis. BMP-7 antagonises TGF-β mediated EMT in renal tubular cells. HDAC5 negatively regulates BMP-7 but role of HDAC5 in regulation of renal tubular EMT associated with renal fibrosis is yet be explored. Here we studied the role of HDAC5-BMP-7 axis in regulation of EMT in renal tubular cells.
Methods: NRK52E (tubular epithelial cells) were procured from NCCS (Pune India). NRK52E cells were stimulated with 10ng/ml of TGF-β for 24Hrs and 48Hrs to either isolated cell lysate for RNA, protein analysis and for immunocytochemistry. Selective HDAC5 knock down was induced 24Hrs before stimulation with TGF-β.

To determine the expression of HDAC5 in mouse model of renal fibrosis, C57/BL6 mice were procured from registered CPCSEA breeder (Hyderabad India). Mice were then exposed to renal fibrosis by unilateral ischemic injury with 45 min renal artery clamping (chronic IRI) and unilateral ureteral ligation (UUO). Mice were then sacrificed on day 2,6 and 10 and on 15 and 21 day for UUO and chronic IRI model respectively. Renal tissues were harvested to study the markers of EMT and expression of HDAC5 and BMP-7.
Results: HDAC5 was upregulated in NRK52E cells stimulated with TGF-β along with EMT markers like (Vimentin, α-SMA) at 48hrs. HDAC5 siRNA mediated knock-down of HDAC5 reduced the up regulation of both Vimentin and α-SMA, while the E-cadherin expression was unaffected with retention of epithelial phenotype in renal epithelial cells stimulated with TGF-β. The expression of BMP-7 was upregulated in HDAC5 depleted NRK52E cells stimulated with TGF-β at 48hrs.

HDAC5 was upregulated while BMP-7 was downregulated in harvested renal fibrotic tissues harvested at day 10 in UUO and day 15, day 21 in Chronic IRI mouse model of renal fibrosis.
Conclusions: Here we show HDAC5 upregulation in chronic renal injury models as well as in tubular epithelial cells stimulated with TGF-β. The factors regulated by HDAC5 are expressed differentially in these mouse models (like BMP-7, KLF2 and Foxc2). The HDAC5 depleted tubular epithelial cells preserved their epithelial phenotype in the presence of TGF-β due up-regulation of BMP-7. We propose HDAC5 as one of the potential therapeutic target to reduce progression of EMT and renal fibrosis.

SAT-092

THE DUEL OF DAVID AND GOLIATH: HOW SHOULD MGFR BEAT THE ESTIMATED GFR?

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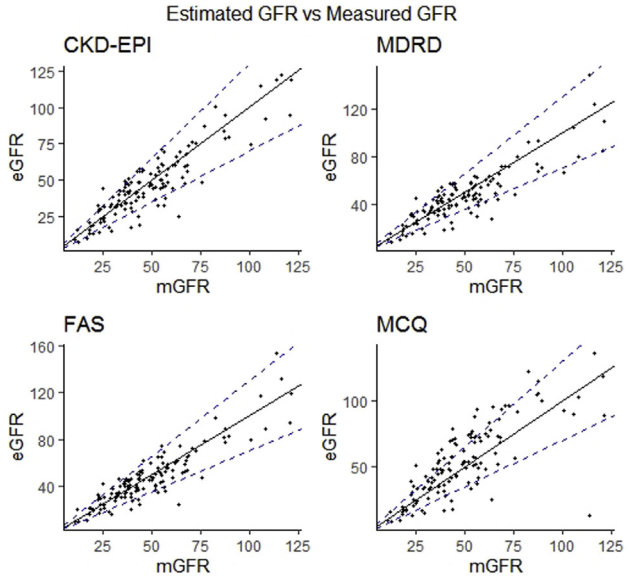
Introduction: An accurate assessment of renal function in urological and oncological patients should be mandatory to define the most appropriate urological surgery technique (nephron sparing vs radical nephrectomy) and to decide the correct dose for each type of chemo-immuno therapy for metastatic pts. Unfortunately, the most used method to measure GFR in day to day clinical practice is represented by the estimated glomerular filtration rate (eGFR) which harbours a significant error in comparison to gold standards methods (mGFR). The objective of this study is to determine the extent of the error of eGFR compared to the mGFR in the oncological and urological pts category.
Methods: A prospectively consecutive cohort of 129 pts affected by uro-oncological neoplasm was collected comparing eGFR formulas with mGFR using iohexol renal measurement (gold standard). The iohexol plasma clearance protocol involves the administration of an endogenous marker (Iohexol) and the measurement of the disposal time curve for renal activity from the body. Four estimated GFR formulas were used for this study: CKD-EPI, MDRD, MCQ, FAS. The agreement between eGFR and mGFR was evaluated taking in account Bias, expressed as median of percent difference between mGFR and eGFR and overall accuracy as P_{30} representing the percent of estimates within 30% of measured GFR.
Results: Mean age of our cohort was 65 ys (s.d. ± 14), with a male:female ratio of 3.6. The agreement between formulas and mGFR was poor. The Bias for MDRD, CKD-EPI and FAS was 2% and for MCQ was -11% indicating that, except for MCQ formula, the considered formulas don't harbour huge systematic errors. Different information was provided by the accuracy parameter: P_{30}. The P_{30} observed for the four formulas were 82% for CKD-EPI, 78% for MDRD, 84% for FAS and 61% for MCQ. The comparisons between the eGFR formulas and mGFR show that there is a loss of accuracy at lower values of GFR (≤ 60 mL/min/1.73 m2) where the metrics P30 for all the formulas is lower than 85%. In particular, a not negligible percentage of patient with mGFR lower than 60 mL/min/1.73 m2, tends to be wrongly over or underestimated with a discrepancy greater than 20 mL/min/1.73 m2 (especially the MCQ formulas).



Conclusions: Direct measurement of GFR using a gold standard technique must be considered in selected pts before clinical decision. Assuming that performing mGFR for routine practice or in epidemiological studies could be not always feasible, the current findings emphasize the absolute need to

determine an mGFR with gold standard method at least for those pts at eGFR lower than 60 mL/min/1.73 m2 who deserve surgical operations, anti-coagulant therapies, nephrotoxic drugs, oncological medical therapies (included experimental protocols) and radiological contrast medium agents injections.

SAT-093

THE STRANGE CASE OF RENAL FUNCTION AFTER RADICAL NEPHRECTOMY: A FOGGY FORECAST

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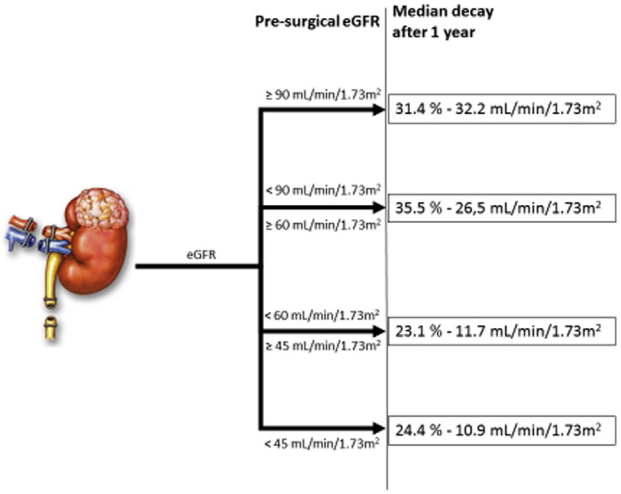
Introduction: The risk of developing a mild to severe chronic kidney disease stage after radical nephrectomy represents one the major nightmare for oncological patients who require surgery for kidney cancer. The fear of a renal replacement therapy which may occur after the operation in patients with a baseline compromised renal function drives the choice of the surgical approach for clinicians. But are we really sure that removing a kidney means the halving of the baseline eGFR? Are we able to select at baseline which patient will develop acute kidney injury and which one no? And finally, do we exactly know if a mild to severe CKD stage at baseline represents a risk factor to decrease eGFR in comparison to normal renal function pts? Aim of our work is to better understand this pathological-physiological mechanism of compensation.

Methods: We collected retrospectively clinical data of a group of 114 patients who underwent RN for the presence of a benign or malignant renal mass. To evaluate the risk to develop acute kidney injury (AKI) after surgery, serum-creatinine (sCr) values were collected before surgery and after 1 year the surgery. We estimated Glomerular Filtration Rate (eGFR) with CKD-EPI formula. According to RIFLE criteria, we defined the AKI onset with a ratio of sCr/sCr(t0) higher than 1.5 during hospitalization. Moreover, to investigate a possible correlation between renal basal histology and renal functional decay, two renal biopsies (> 20 glomerula for each section) were performed on each renal tissues [from the healthy part of the removed kidney > 3cm far from tumor]. A pathological evaluation using a chronicity score (Remuzzi Score) was subsequently carried out evaluating damage on four parameters: (a) glomerular global sclerosis, (b) tubular atrophy, (c) interstitial fibrosis and (d) arterial narrowing. Statistical analysis were performed using generalized linear model (GLM), Kruskal-Wallis test and chi-square test. Statistically significant correlations were considered for p-value<0.05.

Results: At t0, 21% of the patients had an eGFR>90ml/min/1.73m^2, 45% between 60 and 90, 23% between 30 and 45, and 11% under 45. Taking in account the percentage of decay there was a strong negative correlation with AKI onset (p<0.0001), a positive correlation with Diabetes (p<0.05) while no correlation with CKD Stage at t0 (p=0.051). No significative correlations were found between the decay of eGFR and other variables such as age, gender or comorbidities. Considering a subgroup of 98 patients the analysis enlightened a significative negative correlation between the eGFR decay and the presence of arterial narrowing (p<0.01) and tubular atrophy (p<0.05) but no correlation was found with the whole chronicity score.



Conclusions: Renal function after RN shows for each class of CKD stage after 1 year from surgery a diverse decay related to the baseline eGFR. Healthy patients display a huge decrease of eGFR in comparison to CKD stages III-IV which remain stable at 1 year. One possible explanation is that the healthy kidney of the patients affected by moderate and severe CKD starts working with a compensatory mechanism before the entire removal of the kidney with cancer so that the surgical acute nephron loss does not represent a shock in comparison to healthy patients. The second hypothesis is that CKD patients are treated in a more precise and specialistic way in comparison to the other.

SAT-094

HEMODIALYSIS EMERGENCIES IN A NEPHROLOGY DEPARTMENT: ABOUT 117 CASES

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Introduction: Hemodialysis (HD) emergencies in nephrology are very common. Prompt diagnosis and management are needed as it can be life-threatening. We aim to determine epidemiological, clinical, biological aspects as well as the etiological profile of our population.

Methods: We conducted a cross-sectional study during 3 months (February, March and April 2019) collecting patients who underwent at least one session of HD at our nephrology department. Were included patients aged over 18 years old. Were excluded chronic dialysis patients presenting for their usual session. Data collection was conducted from HD registers. We collected the following parameters: age, gender, comorbidities, initial nephropathy, clinical data(blood pressure, pulmonary auscultation, diuresis, oxygen saturation), the current treatment and biological data(creatinin, kalemia, hemoglobin, and gasometry).

Data were entered and analyzed using SPSS software. Chi-squared test with a level of significance of 0.05 was used for the qualitative variables.

Results: A total of 117 patients were included, mean aged 60.71 years old (range:28-90) with a sex ratio M/F at 1.3. Our population consists in 42 chronic HD patients(37.9%), 34 Patients with moderate to severe renal failure(RF) (29.9%) and 41 patients with acute kidney injury (AKI) (35%). Initial nephropathy causes were vascular in (40%), glomerular in(25%) and undetermined in(35%) of cases. Our patients had hypertension, diabetes, dyslipidemia in respectively (58%),(45%) and (7.6%). Twenty two chronic HD patients were anuric (48.8%). Seventy-nine patients were admitted from the emergency department(68%), 21 patients from the surgical and urology departments(18.4%),8 patients from the intensive care unit (7.6%) and 4 patients from other departments(4.2%). HD indications were acute pulmonary edema in (41.8%), metabolic acidosis in (41.8%), hyperkalemia in (37.6%), Uremic signs in (22.2%). Inadequate hyperkalaemic treatment was noted in(22.7%)of cases. Conventional HD was performed with mean session duration of 3 hours. Ultrafiltration was required in 46 cases (36.8%) with an average of 1860ml(range:500-4000). Perdialytic complications were observed in(12.5%)of cases. Hypotension was the most common complication which leads to the interruption of the session in(5.9%)of cases. Disequilibrium syndrome was observed in 2 patients. Arrhythmia and acute cardiac failure were noted in 2 patients. Death occurred in 1 case caused by arrhythmia. Advanced age, anuria and underlying RF were independent risk factors of emergency dialysis with respectively (p=0.02, p=0.01 and p=0.05).

Conclusions: Dialysis emergencies remain frequent in our country. Acute Pulmonary edema and metabolic acidosis were the main indications followed by hyperkalemia and anuria. Poor and delayed chronic renal failure management could explain the frequent use of emergency HD. The analysis of the causes and dialysis modalities in emergency situations, contributes to adopt a preventive strategy in order to identify high-risk patients and to optimize treatment protocols.