LRs. 54% of Type I and 51% of Type II diabetics were LRs. LR group were older (median age 67 v 62; p<0.0001), tend to start on HD (76% v 63%; p<0.0001), more anaemic at start of RRT (median Hb 9.4 v 10.0 g/dl; p<0.0001) and had poorer survival compared to early referral (ER) group.

Excluding those patients that died within the first 90 days of starting RRT, survival analysis showed that in the subsequent 1 year the LRs had a significantly poorer survival at 83% (95%CI 81-85) than the ERs at 90% (88-91) after adjusting for age. When analysed by age group above and below 65, the increased risk of death in LR remained. Adjusting for Hb in the Cox analysis did not alter the survival data.

To exclude potential skewing by those patients referred <3 months before RRT start, survival analysis was repeated using 3 subgroups of referral pattern: Group 1 (<3 months, n=1039), Group 2 (3-12 months, n=767) and Group 3 (>12 months, n=1936). After age adjustment, 1 year after 90 days survival analysis showed worse survival in Group 1 at 81% (79-84) than in Group 2 at 85% (82-88) (p=0.0476), but also more importantly significant worse survival in Group 2 than in Group 3 at 90% (88-91) (p=0.0042).

In conclusion, this analysis shows that the poorer clinical outcomes and survival seen in LR is not confined to those referred <3 months before RRT start only, but also extends to patients referred 3-12 months before RRT start.

PUB136

Lupus Nephritis and Its Impact in a South African Population.

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Our objectives were to describe the patterns of lupus nephritis and the contribution of renal disease to mortality in a South African population with SLE from a single centre.A retrospective record review of patients fulfilling American College of Rheumatism (ACR) criteria for lupus presenting to Chris Hani Baragwanath hospital (Soweto,South Africa) .between 1987 and 2003 was performed.Clinical and laboratory data was recorded.Patients with lupus nephritis were compared to patients without lupus nephritis for correlations with mortality and correlations were tested using the Chi squared test

226 patients were analyzed (M : F =1 : 18.9).Mean age at presentation- 33.8yrs(+/-12.5). Mean follow up - 60.4 mnths. Known deaths occured in 55 patients .and 65 patients were lost to follow up In total 99(43.8%) of patients had lupus nephritis(M : F= 1 : 18.8).Renal failure was the second commonest cause of death (12.7% of deaths) after infections(32.7% of deaths) when cause of death was known. Clinical and laboratory characteristics did not differ significantly between patients lost to follow up and patients known to be alive. Lupus nephritis(63.6% vs 36.4%),oral ulcers and low complement were significantly more common in patients who died.

81 patients were biopsied at least once.WHO V was the commonest pattern reported on biopsy (40 biopsies -16 in combination with II ;III or IV).WHO III was reported in 31patients. Class II was reported in 13 and Class IV was reported in 14 patients.Class VI was reported in two and Class I in one patient. There were no significant differences in class reported between dead and living patients.

We concluded that lupus nephritis was common in our group of patients with SLE in agreement with previous reports. Lupus nephritis is associated with poor outcome in our patients.WHO class V was the commonest reported finding on biopsy but a significant proportion occured in combination with other classes.Class III was the next commonest reported finding.Patients lost to follow up had similar clinical profiles to the group known to be alive.

PUB137

The Effect of LJP394 and Concomitant Immunosuppressive Agents on Levels of Anti-dsDNA Antibodies in SLE Patients.

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The treatment effect of LJP394 and concomitant immunosuppressive agents (IA) on levels of anti-dsDNA antibodies (adsDNA) in SLE patients (pts) with a history of renal disease was examined in a Phase 3 randomized, placebo controlled trial (RCT).

The RCT enrolled 298 pts with high-affinity antibodies to the oligonucleotide epitope of LJP394 (145 LJP394; 153 placebo [pbo]) who received weekly treatment for up to 22 months (100 mg LJP394 or pbo). Pts had SLE, a history of renal disease, and elevated adsDNA levels. adsDNA levels were evaluated at least monthly by Farr assay at a central lab. Changes in adsDNA levels were compared in LJP394 and pbo treated pts who were receiving either mycophenolate mofetil (MMF) or azathioprine (AZA) at baseline.

48% and 42% of pts were receiving an IA at baseline in the LJP394 and pbo groups, respectively. 42 pts were receiving MMF at baseline (20 LJP394 and 22 pbo) and 74 pts were receiving AZA at baseline (38 LJP394 and 36 pbo). Baseline characteristics were similar between treatment groups. Treatment with LJP394 was associated with a statistically significant and persistent decrease in adsDNA levels from baseline compared to pbo treated pts (p< 0.0001). LJP394 treated pts who were on MMF at baseline experienced a greater decrease in median adsDNA levels compared to pbo pts receiving MMF at baseline. By week 24, LJP394 treated pts experienced a median reduction of 55% compared to a median reduction of 6% for the pbo pts. Similar results were observed for LJP394 treated pts who were on AZA at baseline compared to pbo pts receiving AZA at baseline. By week 24, LJP394 treated pts experienced a median reduction of 28% compared to a median reduction of 1% for the pbo pts.

In a RCT in SLE pts with a history of renal disease, treatment with LJP394 resulted in significant and persistent reductions in adsDNA levels. Because of the morbidity and mortality associated with renal flares, pts were allowed to receive concomitant IA. Pts treated with LJP394 and who were on MMF or AZA at baseline had a greater reduction in adsDNA levels compared to pbo pts on MMF or AZA at baseline.

Consultant: La Jolla Pharmaceutical; Scientific Advisor: La Jolla Pharmaceutical

PUB138

Patterns of Angiotensin Converting Enzyme Inhibitors (ACE) and Angiotensin Receptor Blockers (ARB) Utilization in Patients with Chronic Kidney Disease (CKD).

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The use of renoprotective agents has been observed to be suboptimal in patients with CKD. Most studies were cross-sectional, did not include ARB, separate ACE from ARB and/or did not examine predictors of use in renal practices. We evaluated the predictors of ACE/ARB use in 1266 patients with CKD in 6 North American nephrology practices as part of an ongoing prospective cohort study using advanced informatics (RenalSoft™, Baxter Healthcare Corporation) and a centralized data registry. The population had a mean age of 63, 39.3% diabetics, and predominant distribution in K/DOQI CKD stages III through V (% of patients in each stage: III 32%; IV 33%; V 14%). The use of either ACE or ARB by CKD stage was: Stage I=62.5%; II=66.9%; III=69.5%; IV=65.6%; V=55.6%. Overall, the use of ACE exceeded the use of ARB in all CKD stages: ACE I=52.1%; II=40.7%; III=42.6%; IV=43.3%; V=37.5%; vs. ARB I=22.9%; II=31.4%; III=34.7%; IV=26.7%; V=23.1% (p<0.05). Less than 10% of patients in any stage received both. Diabetics had a higher rate of either ACE/ARB utilization than non-diabetics: diabetics I=85.7%; II=82.9%; III=71.8%; IV=71.1%; V=56.7%; vs. non-diabetics I=52.9%; II=60.2%; III=67.5%; IV=61.4%; V=54.8% (p<0.05). Odds ratios (OR) for predictors of ACE/ARB use were calculated by stepwise logistic regression. ACE/ARB was higher in diabetics (OR=1.35, p<0.05), in Canadian patients (OR=1.59, p<0.01) and tended to be higher in men (OR=1.26, p=0.056) and lower with advancing CKD stage (OR=0.86, p=0.054). The last finding could not be explained by hyperkalemia as only 9.8% of patients in CKD stage V had potassium higher than 5.5 mEq/L. Renal interstitial disease was associated with lower rates of ACE/ARB use (OR=0.77, p<0.001). These results show that ACE/ARB use in these 6 practices is higher than previously demonstrated particularly in diabetics and is influenced by regional CKD care models. The tendency for ACE/ARB use to decline with advancing CKD stage presents an opportunity for improvement in CKD care.

Major Stock Shareholder: Salim Mujais is an employee of Baxter Healthcare Corporation

PUB139

Artificial Neural Network Is a Better Model for Predicting Creatinine Clearance in Ventilator-Dependent Chronic Respiratory Failure Patients.

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Serum creatinine (Cr) is commonly used as an index of GFR but easily inaccurate affected by older age, extreme body size, malnutrition and decreased muscle mass. We developed an internally validated artificial neural network (ANN) compared with 4 formulae for estimating GFR to measured 24-hour Cr clearance (CCr) adjusted by body surface area.

Thirty patients (19 male and 11 female, age 78.96±8.49 years) with ventilator-dependent chronic respiratory failure were enrolled. All had accurate 24-hour urinary collection by urinary catheter with simultaneous detection of serum and urinary biochemistries. In ANN models, the variables of Modification of Diet in Renal Disease (MDRD) formula and CCr were selected as predictors and outcome variable, respectively. All patients were randomized with bootstrap resampling and final best model was chosen according to the least ratio of standard deviation (SDR). Using CCr as reference method, Cockcroft and Gault formula (CG), Edwards and Whyte formula (EW), Jelliffe formula (JF), MDRD formula and final ANN model were compared.

Mean CCr was 71.69±59.53 ml/min/1.73 m². The final best ANN model (3 input variables, 2 hidden layers and 1 output variable) was a feed-forward, multilayer perceptron using back-propagation supervised training algorithm (SDR = 0.31). ANN not only had better correlation, least mean error (ME) and root mean square error (RMSE) than other formulae (Table 1) but also had best centralization over zero with bilateral shortest tails in Mountain plot.

ANN offers the most accurate prediction in CCr than other formulae and might be useful to estimate CCr.

Table 1. Comparison between 5 methods to CCr.

	CG	EW	JF	MDRD	ANN
r	0.814	0.818	0.818	0.853	0.953
ME	32.206	31.481	25.091	24.634	11.940
RMSE	47.428	51.594	36.399	38.237	17.831