Conclusion: Injection of pASC in renal graft artery at reperfusion of the grafts in a porcine model mimicking deceased after cardiac arrest donor conditions improves graft function recovery and limits tubular damages. These therapeutic potentials will be confirmed by further studies at the end of the follow-up at 3 months.

O29* IMPACT OF TIMING ADMINISTRATION OF MESENCHYMAL STROMAL CELLS ON SERUM CREATININE FOLLOWING RENAL ISCHEMIA/ REPERFUSION IN RATS

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Experimental models of renal ischemia/reperfusion (I/R) have suggested protective effects of mesenchymal stromal cells (MSC) therapy. Still, parameters of MSC injection, including volume, route and timing of cell administration, remain largely debated. Particularly, MSC infusion in mouse has been shown to be beneficial "a priori" but deleterious "a posteriori" of renal I/R injury. In order to further investigate the influence of the timing of MSC administration, we used 10-week-old Lewis rats categorized in 4 groups. Groups 1 (MSC D-7, $n = 10$) and 2 (MSC D + 1, $n = 7$) received caudal i.v. injection of MSC (1.5×10^6 in 1 ml of saline) 7 days before or 1 day after renal I/R, respectively. Control groups 3 (saline D-7, $n = 6$) and 4 (saline D + 1, $n = 6$) received equal volume of saline at similar time points. Left renal ischemia (by clamping of the renal pedicle) lasted 45 min. Right nephrectomy was simultaneously performed. Blood sample was collected from inferior vena cava at 48 h post reperfusion. MSC phenotype was confirmed by FACS analysis. In groups 1 and 3, serum creatinine (SCr) reached 1.4 ± 0.7 versus 2.4 ± 0.8 mg/dl, respectively ($p < 0.05$). In groups 2 and 4, SCr was 4.9 ± 0.7 versus 3.3 ± 0.9 mg/dl, respectively ($p < 0.001$). Furthermore, SCr levels were statistically worse when MSC were administered after renal I/R in comparison to a priori infusion ($p < 0.0001$). In conclusion, MSC administration 7 days prior to renal I/R attenuates kidney injury in comparison to (i) saline infusion or (ii) MSC infusion 1 day after renal I/R. Conversely, on the basis of SCr levels, MSC therapy performed after renal I/R worsens kidney injury in rats.

O30 A "FIRST-IN-HUMAN STUDY" OF IMPLANTATION OF NEO-KIDNEY AUGMENT, AN AUTOLOGOUS SELECTED RENAL CELL POPULATION, IN TYPE-2 DIABETIC CKD STAGE 3–4 PATIENTS

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Background: Animal models of CKD show that a selected population of bioactive renal cells (SRC) can be delivered through parenchymal injection resulting in a decrease in disease progression. It has been shown to 1) reduce chronic infiltration by monocytes/macrophages and T-lymphocytes and attenuate the NFκB response 2) promote tubular cell expansion. We used a laparoscopic technique to perform a study with Neo-Kidney Augment (NKA).
Methods: Six type-2 diabetic (108 ± 11 kg) patients (64 ± 6 years) with CKD 3–4 were selected. After evaluation of iohexol clearance, MRI, renal scintigraphy and albumine-creatinine ratio (ACR) patients underwent a regular renal biopsy. Two cores were shipped to the Tengion (Winston Salem, NC, USA) for tissue separation, cell isolation and product preparation. NKA was shipped back to Karolinska (range 59–87 days after biopsy) for intracortical injection using a laparoscopic hand-assisted retroperitoneal technique (HARS).
Results: No complications occurred at biopsies. All resulted in material being used to obtain NKA. Implantation of 8 ml NKA into the left kidney was uneventful. No bleeding occurred at the site. A postoperative complication was observed in one patient (ileocecal volvolus, leading to a right-sided hemicolectomy). Infectious complications (hospitalizations) were observed in three patients in the first three months. Antihypertensive medication has been reduced 3/6 patients during the first 6 m following implant. S-creatinine has remained stable at 6 and 12 months after autologous renal cell implantation in four out of the five first patients. In patient 03 the rise in s-creatinine has been related to postrenal obstruction.
Conclusion: NKA was safely implanted in six T2DM patients. In this population complications after the implantations were related to the surgical procedure. Longer follow-up and more patients are needed to reveal if this technique can arrest porogression of CKD and delay the start of renal replacenent therapy.