connection, Fe accumulation in several brain regions, and specifically in the *substantia nigra* has been reported in PD patients. We have previously demonstrated that dopaminergic neurons exposed to α-synuclein overexpression and Fe overload display lipid dyshomeostasis that results in triacylglycerol accumulation and exacerbated phospholipid hydrolysis. In this work, our goal was to characterize the brain lipid profile in an *in vivo* model of ferroptosis. For this purpose, C57BL/6 mice were subjected to Fe overload by performing a four-doses scheme of intraperitoneal administration (Fe-saccharate -800 or 1332 mg/kg- or vehicle). During treatment (16 days), animal welfare and locomotor activity were periodically evaluated. After sacrifice, biochemical parameters were determined in several organs (brain, liver and kidney). Motor skills were assessed by using open field and footprint tests. Mice exposed to Fe overload (1332 mg/kg) showed a 60% diminution of total distance traveled, associated with a greater thigmotaxis (20%; $p < 0.05$) and a slightly delayed right footprint. These alterations in motor skills were related to increased α-synuclein expression. A buildup of oxidative stress markers associated with ferroptosis, such as lipid peroxide levels and conjugated dienes and trienes products derived from fatty acid oxidation (200% and 500%, respectively), was detected in the brain of Fe-treated animals compared to controls ($p<0.001$). Liver and kidney presented a similar profile of oxidative stress markers. Brain lipid content was altered in Fe-treated mice. Whereas increased cholesterol ($p< 0.05$) and diacylglycerol ($p<0.001$) levels were detected, their acylated forms were decreased ($p<0.05$). Total brain phospholipid levels remained unaltered in the ferroptosis model. Changes in neutral lipid profile were paradoxically associated with diminished expression of lipases such as calcium-independent phospholipase A2 and adipose-triacylglycerol lipase. Our results demonstrate that lipid cacostasis is associated with brain Fe accumulation, ferroptosis and motor impairment. The imbalance in lipid acylation/deacylation processes and cholesterol accumulation reported here could be considered as biomarkers of Fe-induced neurodegeneration and ferroptosis.

LI-P04-83

ARE PROSTAGLANDINS INVOLVED IN THE RESTITUTION OF AN OXALATE-DAMAGED EPITHELIUM?

Casali CI [1,2], *Morel Gómez ED* [1], *Erjavec LC* [1,2], *Parra LG* [1,2], *Marino JI* [1], *Fernández-Tomé MC* [1,2].

[1]*Universidad de Buenos Aires, Facultad de Farmacia y Bioquímica-Biología Celular y Molecular.* [2] *IQUIFIB- Instituto Dr Alejandro Paladini -UBA-CONICET.*

E-mail: ccasali@ffyb.uba.ar.

Renal collecting ducts, which are involved in the urine concentration mechanism, are immersed in an extracellular matrix with the highest body osmolarity. This hyperosmolarity is a key signal for renal cell differentiation and for the establishment of the urine concentration mechanism. However, hyperosmolarity can induce cell death when there is a great osmolarity change. Renal cells activate adaptive and protective mechanisms to survive in the hyperosmolar environment. One important cell mechanism is the expression of osmoprotective genes such as cyclooxygenase 2 (COX2). Moreover, renal ducts are exposed to wastes coming from blood filtration that include nephrotoxic drugs and kidney stones. Calcium oxalate stones are the most common type of kidney stone. Crystal aggregates are harmful for epithelial renal cells and tubular structures, and the damage could lead to renal kidney disease. Our prior results showed that oxalate modulates COX2 mRNA and protein expression in renal differentiated epithelial cells, but the role of this protein is still unknown. The aim of the present work is to evaluate whether prostaglandins, the COX2 products, are involved in the regeneration mechanism of differentiated renal epithelial cells damaged with oxalate. To do that, renal epithelial cells MDCK were grown in a hyperosmolar environment (512 mOsm/Kg H_2O) for 72 h to get a differentiated epithelium and then subjected to 1.5 mM oxalate (Ox) for 24, 48 and 72 h. To inhibit COX2, 10 μM NS398 was added 30 min before Ox treatment; and to restore the inhibition, PGE_2 (10^{-5}, 10^{-6} and 10^{-7} M) was added 30 min after Ox addition. After treatment, cells were harvested, counted and cell viability was determined. Cell morphology and COX2 expression was also evaluated. Cells treated with 24 h of Ox showed a spindle-shaped morphology characteristic of an epithelial mesenchymal transition (EMT) and NS398 addition before Ox treatment did not allow these EMT. After 48 h of Ox cells started to recover their typical epithelial morphology. Cell treated with NS398 before Ox showed a cobblestone morphology, but gaps in the monolayer were observed. Control conditions showed the typical epithelial cobblestone morphology after 24 and 48 h. PGE_2 addition to cells treated with NS398 and Ox did not allow the EMT at 24 and 48h. Moreover, PGE_2 treated cells showed a morphology characteristic of an epithelial cells (cobblestone). Ox decreased the number of cells at 24 h and 48 h compared to controls. The treatment with NS398 before Ox addition caused a slight decrease of cell numbers at 24 h but not at 48 h. PGE_2 addition did not affect cell number at 24 and 48 h. Cell viability did not change after all treatments. NS398 induced COX2 expression and the addition of PGE_2 slightly decreased it. The results showed that PGE_2 may be implicated in the restitution of the differentiated epithelia damaged with oxalate, but further experiments are needed to elucidate the molecular mechanisms involved.

LI-P05-89

XBP-1 REGULATION OF ARACHIDONIC ACID AND GLICEROLIPIDS METABOLISM IN RENAL EPITHELIAL CELLS UNDER OSMOTIC STRESS

Parra LG, *Casali CI, Erjavec LC, Morel Gomez ED, Setton-Avruj PC, Fernández MC.*

Cátedra de Biología Celular y Molecular, Facultad de Farmacia y Bioquímica, UBA. IQUIFIB CONICET-UBA.

E-mail: le.parra@live.com

Hyperosmolarity is a key controversial signal for renal cells. Under physiological conditions, it induces renal cell differentiation and maturation of urine concentrating system. However, abrupt changes in environmental osmolarity may also