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Omega 3 attenuates contrast induced nephropathy.

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Objectives : Contrast induced nephropathy (CIN) is major concern in patients with chronic disease. Although it is thought that CIN induced by osmotic and oxidative injuries, the trials to reduction of osmotic and oxidative stress showed limited effect in progress. Recently, it is reported that autophagy plays a role in CIN. And It is reported that omega 3 regulate the autophagy. We evaluated whether omega 3 may attenuate renal injury in CIN via enhancement of autophagic flux.

Methods : 10-week-old male C57Bl/6 mice were divided into 4 groups; sham, Omega 3 + sham, vehicle + CIN, Omega 3 treated CIN. Omega 3(2000mg/kg) and vehicle were administered orally using an NG tube for 2 days, before CIN procedure was performed. CIN mice were injected with L-NG-nitro arginine methyl ester (L-NAME, 10 mg/kg i.p) and indomethacin (10 mg/kg i.p), respectively, 15 min before iohexol(1.5 g iodine/kg i.p) injection. Mice were sacrificed at 24 hour after iohexol injection, and the blood and kidney tissue were collected. Real time RT-PCR, western blot and immunohistochemistry for molecular study and H&E stain and PAS stain for histologic examination were performed.

Results : Omega 3 treated CIN mice showed improvement of BUN and serum creatinine, compared to vehicle treated CIN mice. Also omega-3 treatment reduced the renal tubular necrosis and inflammation in vehicle treated CIN mice. CIN mice showed elevation of LC3 compared to sham mice. Omega 3 treated CIN mice kidney showed higher amounts of LC3 and lower amounts of p62 compared to vehicle treated CIN kidney.

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Conclusions : Omega 3 attenuates renal injury in CIN mice kidney via enhancement of autophagy flux.

Keywords : contrast induced nephropathy, omega 3, autophagy