Role of Oxidative Stress in Renal Transplantation: Bases for an n-3 PUFA Strategy Against Delayed Graft Function

Por: Sotomayor, CG (Sotomayor, Camilo G.)[1]; Cortes, IA (Cortes, Ignacio A.)[1]; Gormaz, JG (Gormaz, Juan G.)[1]; Vera, S (Vera, Sergio)[1]; Libuy, M (Libuy, Matias)[1]; Valls, N (Valls, Nicolas)[1]; Rodrigo, R (Rodrigo, Ramon)[1]

CURRENT MEDICINAL CHEMISTRY
Volumen: 24
Número: 14
Páginas: 1469-1485
DOI: 10.2174/0929867324666170227115435
Fecha de publicación: 2017
Tipo de documento: Review
Ver impacto de la revista

Resumen
Renal transplantation (RT) is considered the "gold standard" treatment for end-stage renal disease patients. Efforts should be made to reduce ischaemia-reperfusion (IR) injury, which unavoidably occurs in RT as long as several clinical settings, i.e. open-heart surgeries, prosthesis implantation, among others. It is well known that IR is primarily responsible for injury associated with RT. Consequently, tissue inflammation and organ dysfunction will ensue due to the occurrence of oxidative stress (OS) in the reperfused tissue, a condition generated when endogenous antioxidant defences become overwhelmed by a massive production of reactive oxygen species. Furthermore, OS is involved in the impairment of renal function, leading to deleterious conditions such as delayed graft function (DGF), which is a common clinical expression of IR injury in RT. Omega-3 polyunsaturated fatty acids (n - 3 PUFA) have been widely used in different clinical settings to counteract the deleterious effects of OS. Thus, based on the currently available literature, the central aim of this review was to propose an n-3 PUFA-based strategy targeting the key role of OS in the pathophysiology of renal IR injury in order to encourage protection against the occurrence of DGF.

Palabras clave
Palabras clave de autor: Oxidative stress; reactive oxygen species; ischaemia-reperfusion injury; renal transplantation; delayed graft function; omega 3
KeyWords Plus: ISCHEMIA-REPERFUSION INJURY; ACUTE KIDNEY INJURY; POLYUNSATURATED FATTY-ACIDS; RANDOMIZED CONTROLLED-TRIAL; MANGANESE SUPEROXIDE-DISMUTASE; PROXIMAL TUBULAR CELLS; REGULATORY T-CELLS; DIETARY FISH-OIL; QUALITY-OF-LIFE; CHRONIC ALLOGRAFT NEPHROPATHY

Información del autor
Dirección para petición de copias: Rodrigo, R (autor para petición de copias)

Univ Chile, Fac Med, Dept Inst Biomed Sci, POB 700758, Santiago, Chile.

Direcciones:


Direcciones de correo electrónico: rrodrigo@med.uchile.cl

Editorial

BENTHAM SCIENCE PUBL LTD, EXECUTIVE STE Y-2, PO BOX 7917, SAIF ZONE, 1200 BR SHARJAH, U ARAB EMIRATES

Información de la revista

- Impact Factor: Journal Citation Reports

Categorías / Clasificación

Áreas de investigación: Biochemistry & Molecular Biology; Pharmacology & Pharmacy

Categorías de Web of Science: Biochemistry & Molecular Biology; Chemistry, Medicinal; Pharmacology & Pharmacy