

Free Radicals

(Medline Express articles)

Article 17 - Involvement of free radicals in the pathophysiology of chronic pancreatitis: potential treatment with antioxidant and scavenger substances.

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The present work reviews the evidence for the involvement of free radicals in the pathophysiology of chronic pancreatitis and the potential treatment with antioxidant and scavenger substances. Preliminary results indicate that exposure of isolated acinar cells to a reaction mixture containing hypoxanthine, xanthine oxydase, and chelated iron causes cell damage and death probably due to generation of superoxide anion and hydrogen peroxide. It still needs to be analysed which scavengers and antioxidants are able to ameliorate the damage due to oxidant stress in cell models.

Such knowledge from cellular studies might help to plan therapeutical trials to evaluate potentially effective antioxidants and scavengers in the experimental animal and in patients with pancreatitis. As yet there are no published studies about the role of free radicals in animal models of chronic pancreatitis. This fact is probably due to the shortcomings of the animal models available. Recent studies presented evidence that activation of oxygen-derived free radicals occurs in patients with chronic pancreatitis. There is also some evidence that the dietary intake of antioxidants may be reduced in patients with chronic pancreatitis. It was suggested that such reduction of antioxidant defences in the face of an increased demand due to heightened induction of P450 activities may facilitate lipid peroxidation. However, as yet, there is no direct evidence that a reduction of dietary antioxidants with a simultaneous increase of P450 activity is the primary mechanism which indicates chronic pancreatitis without contribution of other factors.