1,8-Cineol effect on acute pancreatitis induced by cerulein in mice


DFF-FM; DACT-FFOE; PPGCM-FM, Federal University of Ceará

Key words: cerulein; cineol; pancreatitis

Introduction: The 1,8-cineol, a terpenic oxide, has anti-inflammatory and antioxidant activities. Pro-inflammatory cytokines and the oxidative stress have an important role in the acute pancreatitis. This work evaluated the 1,8-cineol effect on the acute pancreatitis induced by cerulein in mice.

Experimental Part: Swiss mice, male, 25-30g, n=8/group, were treated, oral, with a vehicle (2% Tween 80 in saline), cineol (100, 200, 400 mg/kg) or thalidomide (200 mg/kg) 1h before the cerulein administration (5x50µg/kg, 1/1h). An animal group received just serum amylase (AM), lipase (LP), TNF-α and IL-6, pancreatic malondialdehyde (MDA) and GSH. The project was submitted to CEPA/UFC (Proc. No. 30/12).

Results/Discussion: Cerulein increased significantly AM (7298±213,5U/dL), LP (1002±159,1U/L), TNF-α (66,48±8,31pg/mL) and IL-6 (16,21±1,27pg/mL) when compared to the saline group (2985±228,7U/dL; 710,6±108,8U/L; 23,97±2,64pg/mL; 6,13±0,58pg/mL; 21,20±1,04pg/mL, respectively). Cineol 100, 200 and 400mg/kg reduced significantly AM (14; 16,7; 21,0%), LP (49,6; 48,1; 42,4%), TNF-α (46,9; 66,2; 44,6%) and IL-6 (49,6; 40,2; 41,3%), respectively, compared to the vehicle group. Cerulein produced pancreatic edema (6,78±0,31mg/g), increased MDA (23,75±1,64nmol/g) and reduced GSH (3,37±0,82µg/g) compared to the saline group (4,45±0,07mg/g;13,76±0,90nmol/g; 9,81±1,82µg/g, respectively).

Cineol 100, 200 and 400mg/kg reduced the pancreatic edema (6,4; 27,7; 17,4%) and MDA (34,7; 29,1; 46,1%) respectively, compared to the vehicle group. Cineol preserved GSH. Thalidomide produced anti-inflammatory and antioxidant activity. The results were expressed as media±e.p.m. or percentage, whereas a p<0,05.

Conclusion: The 1,8-cineol attenuate the acute pancreatitis development induced by ceruleine through anti-inflammatory and antioxidants mechanisms.

Financing: CNPq, CAPES, FUNCAP

Thanks: For the technic support of Francisco Alison Braga and Aguine Rocha.