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Protective Effect of Cabbage Extract against Amiodarone Induced Oxidative Stress in Rat Brain

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Abstract: Amiodarone is the most commonly prescribed antiarrhythmics effectively treating atrial and ventricular fibrillation. It has many important side effects, including hepatotoxicity, thyroid and neuropathic problems. Cabbage (*Brassica oleracea* L. var. capitata) is one of the most important vegetable in worldwide. Due to its antioxidant and antiinflammatory activities, cabbage has a widespread use in traditional medicine. In this study, we aimed to investigate the effects of amiodarone and cabbage extract on rat brain. Female Sprague-Dawley rats were randomly divided into four groups as follows: control group receiving corn oil: cabbage extract (500 mg/kg/day) given group: amiodarone (100 mg/kg/day) given group: amiodarone + cabbage extract (in same dose) given group. Cabbage extract and amiodarone were given by gavage to the rats for 7 days. Amiodarone was given to the animals one hour after cabbage extract administration during the experimental period. All animals were sacrificed on the 8th day. Brain tissues were taken and homogenized in saline. Brain lipid peroxidation and protein carbonyl levels, catalase, superoxide dismutase, adenosine deaminase, xanthine oxidase and myeloperoxidase activities were increased while sodium potassium ATPase activity was decreased in amiodarone group. Administration of cabbage extract reversed these effects. These results demonstrated that administration of cabbage extracts is a potentially beneficial agent to reduce the brain damage induced by amiodarone.

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Sažetak

Amiodaron je najčešće propisivani antiaritmik koji učinkovito liječi fibrilaciju srčanih komora. Ima mnogo značajnih popratnih efekata, uključujući hepatotoksičnost, tiroidne i neuropatične probleme. Kupus (*Brassica oleracea* L. var. capitata) je jedno od najznačajnijih vrsta povrća u svijetu. Zbog antioksidativnog i antiinflamatornog djelovanja, kupus se naširoko koristi u tradicionalnoj medicini. U ovom radu ciljali smo da ispitamo efekte amiodarona i ekstrakta kupusa na mozak pacova. Ženke Sprague-Dawley pacova su nasumično podjeljene u četiri grupe: kontrolna grupa kojoj je davano kukuruzno ulje; ekstrakt kupusa (500 mg/kg/dan); amiodaron (100 mg/kg/dan); amiodaron + ekstrakt kupusa (u istim dozama). Ekstrakt kupusa i amiodarona je davan kljukanjem pacova u periodu od 7 dana. Amiodaron je davan životinjama jedan sat nakon davanja ekstrakta kupusa u toku eksperimentalnog perioda. Sve životinje su uspravane osmog dana. Moždano tkivo je uzeto i homogenizirano u slanom rastvoru. Aktivnosti peroksidacije moždanih lipida i nivoi protein karbonila, katalaze, superoksid dizmutaze, adenozin deaminaze, ksantin oksidaze i mijeloperoksidaze su povećane dok je aktivnost natrij kalij ATPaze smanjena u amiodaron grupi. Korištenjem ekstrakta kupusa ovi efekti su obrnuti. Ovi rezultati su pokazali da ekstrakt kupusa predstavlja potencijalno koristan agens u smanjivanju oštećenja mozga izazvanog amiodaronom.