Oxidative Stress and Lipid Peroxidation in the Brain

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Abstract

The brain is sensitive to lipid peroxide, which indicates oxidation degradation of oxidation stress and lipids. Root oxidation without an electron “confused” from lipids in cell membranes, can cause modification of cell damage to the structure of the protein and the function of the membrane protein. An oxidation series can be initiated in this process, including H2O2.

Free radical oxidation is an important starting point for iron. Responsible for the reaction of peroxidation lipids in rat tissue homogenates, it can be harmful to the lipid peroxidation catalyst, as it can initiate and propagate lipid peroxidation. Lipid peroxidation homogenate by fracas The Fenton reaction uses free radicals (-OH and -O2) for self-initiation of fatty acid-lipid peroxidation fatty. This experiment investigates the ability of antioxidants to prevent cell damage using two antioxidants, α-tocopherol and quercetin. In the data, the Fenton reaction caused by the small principle (MDA) was the maximum concentration.

Introduction

Oxidation is a lipid oxidation degradation process. During this process, there are free radicals such as superoxide, hydroxyl, and polyunsaturated fatty acids. Free radicals have unbalanced oxygen forms, and the oxygen-free forms require the Valence ring as an outer shell, and which comes electronically mismatched. Free electrons are very reactive due to the fact that unbalanced state electrons are inappropriate. As a result, free roots need to find stable electronics. Hydrogen-air joints are a suitable electronic source of fatty acid beads. There is a process through lipid peroxidation: initiation and winding replication, during which electrophilic reels form highly reactive. These aldehydes respond to a group CH2 to make the roots of CH. Then, respond to roots CH roots with O2 for peroxyl lipid roots. During playback, peroxyl reacts with CH2 and forms lipid hydroperoxide. Hydroperoxide can be exhausted to obtain multiple oxides of peroxide lipids, such as malonosny alder (MDA). Fenton (Fe2 + and H2O2) reaction to obtain lipid peroxide in the liver, as well as free roots (especially -OH). MDA is the ultimate product of lipid peroxide, which is very important for indicators of oxidizing stress diseases, such as atherosclerosis. MDA also responds to the thrombotic acid to test pink light, known as reactive acid thiobarbituric (TBARS) substances. A-tocopherol can be stopped by lip peroxide, which acts as an antioxidant and eliminates the manifold process.

Results

The final concentration of MDA (mM)	OD values
0.1	2.973
0.05	2.956
0.01	2.410

Table of Own MDA

A known amount of MDA (nmol/ml)	OD values
0	0.000
12.5	0.070
25	0.145
50	0.260
100	0.550

Table for lecturer data

Table of own OD values

Contents of tubes	OD value	Concentration of MDA (nmol/ml)
Control	0.052	9.455
Fe^{2+}	0.098	17.818

Fe^{2+} H_2O_2	0.107	19.455
Catalase Fe^{2+} H_2O_2	0.150	27.273
Quercetin Fe^{2+} H_2O_2	0.051	9.273

Class for a-tocopherol

OD values from 7 experiments	Control	Fe^{2+}	Fe^{2+} H_2O_2	Catalase Fe^{2+} H_2O_2	α-tocopherol Fe^{2+} H_2O_2
	0.041	0.031	0.121	0.087	0.076
	0.033	0.041	0.158	0.077	0.057
	0.066	0.091	0.124	0.046	0.084
	0.047	0.062	0.126	0.072	0.060
	0.044	0.051	0.121	0.087	0.076
	0.038	0.054	0.175	0.049	0.082
	0.051	0.043	0.166	0.038	0.065
Mean	0.046	0.053	0.142	0.065	0.071
Mean +/- SEM	0.042	0.046	0.133	0.057	0.067
Concentration of MDA (nmol/ml)	7.636	8.364	24.182	10.364	12.182

Class data for Quercetin

OD values from 7 experiments	Control	Fe^{2+}	Fe^{2+} H_2O_2	Catalase Fe^{2+} H_2O_2	Quercetin Fe^{2+} H_2O_2
	0.075	0.080	0.162	0.135	0.087
	0.080	0.081	0.151	0.141	0.090
	0.041	0.091	0.176	0.115	0.062
	0.052	0.098	0.107	0.150	0.051
	0.056	0.061	0.180	0.093	0.059
	0.042	0.086	0.103	0.079	0.049
	0.064	0.076	0.143	0.119	0.084
Mean	0.059	0.082	0.146	0.119	0.069
+/- SEM	0.053	0.078	0.134	0.109	0.062
Concentration of MDA (nmol/ml)	9.636	14.182	24.364	19.818	11.273

The above graph displays the concentration level of the MDA (mM). There are no significant variations in the OD values.

The above graph shows a strong linear relationship between the variables. The graph represents a straight line that shows linearity among the variables.

The concentration chart shows different concentrations of all the elements used in the experiment. Catalase has the highest concentration level, whereas Quercetin has the lowest concentration chart.

In the above graph, all values are distributed with a categorized class of a-tocopherol. There is no significant variation in the variables.

The final graph represents the class data for Quercetin. A comparison of the means and concentration of all the acids (variables) is made.

Discussion

A critical step in the degradation pathogenesis in lipid membranes. These reactive oxygen species (ROS) lipid peroxidation, such as hydrogen peroxide, a polyunsaturated fatty acid attack, comes from a spontaneous chain reaction. The cause to initiate the reaction in C2 stores roots in the production of 100 peroxyl radical roots. An effect of lipid peroxidation can cause severe tissue damage, leading to severe illnesses such as asthma, atherosclerosis, and kidney disorders. Under normal conditions, ERO is produced at lower levels of the body; it is necessary for normal cellular function, as well as the production of the effect of antioxidants because the reason is to protect the body from harmful free radicals. Antioxidants to neutralize peroxide free radicals, oxidative stress cells protection. Antioxidants such as dietary antioxidants such as vitamin E (α-tocopherol) versus lipid peroxidation in a rat liver homogenate quercetin. A tocopherol is the possibility of reducing oxidation state high oxidation (Esterbauer et al. 1991).

The data show that the experimental data set's low OD average, composed of the standard deviation bar patients, increased, leading to a dangerous NBC change in the shape of the 4-5 tube. As shown in Figure 4 shows a higher concentration of MDA (M / G) 3 tube, which is strongly oxidation conditions. 4, this figure shows a decrease in MDA in the effects of peroxidation, such as percephalol pink tocopherol addition product and lipids. Fatty acids showed self-breaking in the homogenate cycle of the liver. The reduced concentration of the communications presented in MDA-tocopherol is at a peak of 45 m / g, and m decreased to 24 MDA / ml.

Two 500 700 and SEM were used to compare each other for two different groups because they were in different conditions. Figure 2 Figure 5; and (for 500) with a mutation in 700, there is a more considerable change from higher values above 500, which shows reproducibility; the reliability is lower. The arrangement of Figure 5 and Figure 2 is less than 500; the results show that the security is more and more scattered. The data points were taken (A-B), which is the highest value detected in the OD duct, 3 Fe2 + and H2O2 give the highest concentration of MDA (M / ml). The two television shows that both groups of data sets from the same finesse and reduce the concentration of MDA in the presence of antioxidants and reduce lipid peroxidation (MDA is a product of anhydrous lipid metabolism, pink produced from addition) and their free radicals by producing graded anti-oxidants. Using the standard curve to determine the concentration of each quercetin antioxidant reduces the amount of MDA and involves a reduction in free radical power and MDA concentration (buffer). When you compare it with tocopherol, it is less than about half the concentration of free radicals. The results show that the level of oxidative stress of protein is now antioxidants (Botsoglou, 1994).

It is possible that the improvements made to note the damage to the sample used for comparison purposes, increasing the supply of antioxidants to display different tend to reduce free radicals to

antioxidants. Also, the level of individuals in the data collection of the error of not laboratory tests requested that the costs be reduced costs, and from there, through his own experience. Antioxidants reduce the concentration of MDA (M / G) in vitro, preventing lipids from oxidative stress and lipid peroxidation in agonist cells. Quercetin completely discharged local concentration of MDA homogenate indicator rat tie lipid peroxidation is impossible due to the nature of free radicals (Fenton reaction), the natural inclination of the antioxidant. This was a significant reduction in MDA-tocopherol concentrations, but it was only 50%. It appears that the regulation of cellular lipid free radicals reduces the aliquot of facilities to protect against oxidative stress, and it reduces tissue loss.

References

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