

研究業績 英文表記

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Title	The effects of dietary linoleic acid on reducing serum cholesterol and atherosclerosis development are nullified by a high-cholesterol diet in male and female apoE-deficient mice
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Abstract	<p>Linoleic acid (LA) has a two-sided effect with regard to serum cholesterol-lowering and pro-inflammation, although whether this fatty acid reduces serum cholesterol and the development of atherosclerosis under high-cholesterol conditions has yet to be ascertained. In this study, we examine the effects of dietary LA on reducing serum cholesterol and atherosclerosis development under high-cholesterol conditions. Male and female apoE-deficient (ApoE^{-/-}) mice were fed AIN-76-based diets containing 10% SFA and 0.04 % cholesterol, 10% LA and 0.04% low cholesterol (LALC), or 10% LA and 0.1% high cholesterol (LAHC) for 9 weeks. The results revealed significant reduction in serum cholesterol levels and aortic lesions with increasing levels of pro-inflammatory biomarkers (urinary isoprostane and aortic MCP-1 mRNA) in male and female LALC groups compared with those in the SFA groups (P < 0.05). Furthermore, whereas there were significant increases in the serum cholesterol levels and aortic lesions (P < 0.05), there was no difference in aortic MCP-1 mRNA levels in male and female LAHC groups compared with those in the LALC groups. A high-dietary intake of cholesterol eliminated the serum cholesterol-lowering activity of LA but had no significant effect on aortic inflammation in either male or female ApoE^{-/-} mice. The inhibitory effect of LA on arteriosclerosis is cancelled by a high-cholesterol diet due to a direct increase in serum cholesterol levels. Accordingly, serum cholesterol levels might represent a more prominent pathogenic factor than aortic inflammation in promoting the development of atherosclerosis.</p>
keyword	ApoE-deficient mice, Atherosclerosis, Cholesterol, Linoleic acid, Pro-inflammation

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