Effects of Cytochrome C on the Experimental Atherosclerosis of Rabbits

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Authors observed effects of cytochrome C, which is basic polyelectrolyte, on the serum total cholesterol value, β-lipoprotein index and macroscopic findings of aorta of lanolin fed rabbits, and acquired interesting information after 12 weeks that hypercholesterolaemia and atheromatosis were depressed by cytochrome C injection.

In this paper, authors will report effect of cytochrome C, that is basic polyelectrolyte on the serum total cholesterol value, β-lipoprotein index and atherosclerosis of lanolin fed rabbits.

It is supposed that enzymes of cytochrome system consist of pigmental proteins, and typical enzymes among of them are cytochrome oxidase, cytochrome a, b, c and c1(1). Cytochrome C is very stable, easy to purification and now applied to many patients clinically. Cytochrome C which is most appreciable now, is extracted and refine from horse heart muscles, cattle heart muscles and yeast(2,3,4,5,6).

In this experiments, authors used cytochrome C which is extracted from horse heart muscles.

Materials and Methods

Authors used twenty white male rabbits of body...
weight 2.1~2.7 kg. All rabbits were fed some vegetables and wheat bran 100 g per day as a basic diet.

Authors made experimental atherosclerosis in these rabbits feeding lanolin-cotton seed oil mixture (lanolin 4: cotton seed oil 1) 10 cc per day in addition to basic diet for 12 weeks.

After 2 weeks of lanolin feeding, rabbits were divided into two groups. One is control group (10 rabbits) and the other is cytochrome C injected group (10 rabbits), which cytochrome C (2 mg per kg per day) was injected intravenously.

Serum total cholesterol value was estimated by Shibata’s method and β-lipoprotein index by Burstein’s method.

**Results**

a) Serum total cholesterol value;

Authors have found that serum total cholesterol value of cytochrome C injected group showed lower than control group, as shown...
Figs. 1 and 2.
b) $\beta$-lipoprotein index;

It was clear that $\beta$-lipoprotein index of cytochrome C injected group showed lower value than control group, as shown Figs. 3 and 4.
c) Macroscopic findings of changes on aorta;

Authors found atheroma in two rabbits slightly and in another two rabbits moderately in control group (Fig. 5), but any atherosclerotic changes were not found in cytochrome C injected group (Fig. 6).

The photograph 1 is showing radical part of aorta of control group, and the photograph

Photo 1. Radical part of aorta of control group.

Photo 2. Abdominal part of aorta of control group.

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2 is showing abdominal part of aorta in same animal. And the photograph 3 is showing one of the cytochrome C injected group.

It is very significant that the width and frequency of aortic lesions were different between control and cytochrome C injected group.

**CONCLUSION**

In rabbits which were fed lanolin and cotton seed oil, hypercholesterolaemia and atheromatosis were depressed by cytochrome C injection. But the mechanisms of antiatherogenic action of cytochrome C is unknown yet.

**REFERENCES**


![Photo. 3. Radical part of aorta of cytochrome C injected group.](image-url)