

Study of Cholesterol Fractions in Acute Infections of Infants With and Without Eczema.

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A study of the plasma cholesterol fractions in acute infections has been reported.¹ This previous investigation included 12 children ranging in age from 18 months to 13 years. It was observed that the total cholesterol values were much less at the height of the infection than during the period of convalescence and that this reduction was due to a marked fall in the ester cholesterol. The free cholesterol changed very little.

Repeatedly, however, reference has been made to the statement that the response of the blood lipids to various factors might not be the same in the infant as in the older child. Plasma cholesterol is considered to be quite low in many infants.² Furthermore, a recent study has shown that infants with eczema tend to have a low serum cholesterol.³ The influence of acute infection upon the already low values of cholesterol in normal and eczematous babies has not been recorded.

Fourteen infants ranging in age from 3 months to 13 months were chosen for this study. Six of the babies had infections of the upper respiratory tract but no eczema. Three had eczema and repeated acute respiratory infections. The remainder did not have eczema but were ill with pneumonia which represents a rather severe form of infection in the infant. The first blood sample was collected during the height of the disease. The second sample of blood was obtained during the period of recovery after the seventh day of normal temperature. All blood samples were drawn between 12 and 16 hours after a meal. Bloor's methods were followed to determine the total, ester, and free cholesterol values.^{4, 5, 6}

The results are summarized in Tables I and II.

The total cholesterol values of the infants studied are lower in the acute infection than during the period of convalescence. This

¹ Stoesser, A. V., *PROC. SOC. EXP. BIOL. AND MED.*, 1935, **32**, 1324.

² Peters, John P., and Van Slyke, Donald, *Quantitative Clinical Chemistry*, Baltimore, Williams & Wilkins Company, 1931, Vol. 1.

³ Hansen, A. E., *PROC. SOC. EXP. BIOL. AND MED.*, 1933, **30**, 1198.

⁴ Bloor, W. R., *J. Biol. Chem.*, 1916, **24**, 227.

⁵ Bloor, W. R., and Knudson, Arthur, *J. Biol. Chem.*, 1916, **27**, 107.

⁶ Bloor, W. R., personal communication to the author.

TABLE I.
Plasma Cholesterol Fractions in Infections of Upper Respiratory Tract and in
Pneumonia of Infants without Eczema.

Case No.		Total cholesterol Mg. per 100 cc. serum.		Cholesterol esters		Free cholesterol	
A	B	A	B	A	B	A	B
Height of disease.							
1	8	123	95	56	47	57	48
2	9	118	133	71	91	47	42
3	10	143	92	100	43	43	49
5	11	111	87	59	40	52	47
6	12	104	90	47	37	57	53
7		118		71		47	
Aver.		119	99	69	51	50	48
Period of convalescence.							
1	8	175	196	115	133	60	63
2	9	138	185	83	125	55	60
3	10	175	185	123	132	52	53
5	11	133	158	74	105	59	53
6	12	138	170	77	125	61	45
7		175		133		42	
Aver.		155	178	100	122	55	55

A—Infections of Upper Respiratory Tract.

B—Pneumonia.

TABLE II.
Plasma Cholesterol Fractions in Acute Infections of Respiratory Tract of Infants
with Eczema.

Case No.	Total cholesterol Mg. per 100 cc. serum	Cholesterol esters	Free cholesterol
Height of infection			
1	143	90	53
2	137	90	47
2	129	80	49
3	114	59	55
3	137	76	61
Aver.	132	78	54
Afebrile periods			
1	181	105	76
1	177	111	66
2	173	106	67
3	133	64	69
3	153	90	63
3	133	77	56
Aver.	158	92	66

reduction is almost entirely due to a decrease in the ester cholesterol. The changes which occur do not appear to be as marked in the infant as in the older child. This is especially true of the eczema cases. However, in the babies with pneumonia the cholesterol fell during the height of the illness below 100 mg. per 100 cc. in the majority of the cases, and returned to much higher levels during recovery.