Does parasitic infestation protect the rural African from atheroma? (Abstract)

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Summary

Parasitic infestation is associated with an increase in the mast cell population of tissues. Heparin is released from the mast cell to activate lipoprotein lipase and may influence fat metabolism. Depletion of the mast cell population may be a characteristic of a parasitic free, atheroma prone 'Western' population.

KEY WORDS: atheroma, mast cell, African, cholesterol.

The prevalence of atherosclerosis in different communities varies a great deal. The study of a population in which the disease is rare could help to explain the mechanisms by which such subjects avoid the disease and perhaps suggest methods of prevention. Data recorded in a detailed examination of 273 adults in the village of Keneba in The Gambia which has been published elsewhere (Martin and Howells, 1972a and b) included details of dietary habits, family relationships and biochemical and haematological variates.

No relationship was seen between the serum cholesterol concentration and the quantity of dietary protein or milk consumed. There was, however, a relationship between the serum cholesterol concentration and the pattern of albumin and globulin concentration in elderly subjects. Cholesterol was lower in subjects with a high globulin concentration. These subjects also had lower concentrations of serum albumin. Subjects with high globulin concen-

tration and low albumin concentration had higher blood eosinophil counts.

High eosinophil counts suggest the influence of parasitic infestation which is known to be closely related to the serum protein status of rural Gambian subjects and is associated with an increase in the mast cell populations of the tissues.

Mast cells are situated close to blood vessels and contain and release heparin. Heparin activates lipoprotein lipase, which takes fats from the blood to the tissues. Such a mechanism could be a way in which lipid and fat metabolism might be influenced by the environmental circumstances of rural Africans which make them vulnerable to repeated or continuous parasitic infestation.

The epidemic of vascular disease in subjects of all races living in advanced socio-economic circumstances might be related to their relative freedom from parasitic infestation, which renders their tissues mast cell depleted when compared with rural Africans. Historically, the relatively atheroma-free rural African is more representative of the human species throughout its history than the atheroma-prone parasite-free socio-economically advanced 'Western' man.

References

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