

SUMMARY AND CONCLUSION

Malnutrition represents a major health problem in many developing countries and it usually affects infants and children from 6-36 months.

In many studies, the effect of malnutrition on the integrity of the immune system has been investigated.

The aim of this work was to study some immunological factors in serum of PCM children which are affected by the disease and their effects on the normal phagocytic response.

67 children of both sexes with an age range of 3-36 months and suffering from different forms of PCM were studied together with 21 normal healthy children as controls.

Those children were selected from the patients attending the out patient clinics of Benha Faculty of Medicine and investigated in the period between June 1988 and June 1990.

The clinical status was assessed through full history including nutritional data, growth parameters and immunizations. Also, these children were examined

clinically with stress upon weight, anthropometric measures, concomitant infections and signs of PCM.

PCM children were classified according to Wellcome classification, 1970 into Kwashiorkor, marasmic Kwashiorkor and marasmus groups. The number of cases were 21, 17 and 29 cases respectively.

The subjects of this study were tested for serum immunoglobulins levels (IgG, IgM, IgA, IgE and IgD), complement component C_3 , circulating immune complex CIC, measles and tetanus antibodies and for opsonic activity of serum. The achieved results of PCM children were compared to those of control group.

In this study serum IgM, A and E were elevated in PCM children and this elevation could be attributed to concomitant infection. Also serum IgD was elevated and was not related to infection.

Serum C_3 levels were depressed in all PCM groups. This depression was not completely related to the associated infections, still its levels were lower in the sever forms of infections associated with malnutrition. Also these decreased levels of C_3 were affected by the severity of malnutrition, as cases of Kwashiorkor have the lowest levels followed by cases of marasmic Kwashiorkor then marasmic children.

CIC levels were elevated with PCM and were correlated negatively with opsonization showing that it may be a factor affecting phagocytosis in these children. CIC was also correlated positively with measles antibodies that could be responsible for the elevated levels of CIC, which in turn affect immunity. CIC was correlated negatively to C_3 . CIC can trigger to activation of complement system, so may aid in C_3 depletion present in PCM.

In this study opsonic activity of serum was affected by Kwashiorkor. Infection seems to be a factor as cases associated with infection showed lower opsonic activity of their serum. Also cases associated with infection have lower levels of serum antibodies against tetanus and measles. Measles antibodies were affected more by the severity of infection as cases with mixed respiratory infection showed the lowest levels of these antibodies.

Serum antibodies against measles were depressed in all PCM groups. While those against tetanus was not affected by malnutrition.

From this study it was concluded that:

- Humoral immunity is affected by PCM especially serum C_3 , and antibodies against measles.

- Infection plays a role in morbidity of PCM as it shares in depression of serum antibody response against tetanus and measles.
- Vaccination of PCM children, especially during infections is better to be postponed untill recovery.
- Measles immunization in PCM children is better to be delayed untill correction of malnutrition.
- CIC plays a role in disease production in PCM children and this role needs further studies to be clarified.