SUMMARY AND CONCLUSION
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The present project work entitled "Humoral immunity and neutrophil functions in protein energy malnutrition" was performed over 27 children with malnutrition of grade II (according to Indian Academy of Pediatrics classification) and 12 healthy age matched control children, having no clinical evidence of overt infection.

In every child detailed history was taken from control as well as study group. Special emphasis was imparted to the developmental and dietary history. A thorough physical examination was performed in every case with complete anthropometric examination and examination of other systems. Routine hemogram was done in every case along with nitroblue tetrazolium test, candidacidal assay and estimation of serum levels of IgG, IgM and IgA. Observations were tabulated and data were analysed.

Age of children ranged from three months to 6 years. There were 18 male and 9 female children in the study. In control group, there were eight male and
four female children. The maximum (12, 44.4%) number of children had grade III malnutrition, 10 (37.1%) children had grade IV malnutrition and remaining 5 (18.5%) children had grade II malnutrition.

Neutrophil functions were disturbed in malnourished children as depicted by impaired nitroblue tetrazolium reduction capacity; a measure of intra-neutrophilic metabolic and enzymatic function. Nitroblue tetrazolium reduction capacity was impaired in children with weight less than 60% of the expected weight for age, as compared to control children with weight more than 80% of the expected weight for age. There was no difference in nitroblue tetrazolium capacity of children having weight more than 60% of the expected weight for age and those having weight more than 80% of the expected weight for age.

Other evidence of disturbed function of neutrophils was noted by candidacidal assay values. Candidacidal assay, a measure of microbicidal capacity of neutrophils was impaired in all children with moderate to severe malnutrition, as depicted by reduced candidacidal activity.
in children with weight less than 70% of the expected for age, as compared to control children, who had weight more than 80% of the expected weight for age.

There was no significant difference in the serum levels of immunoglobulins (IgG, IgM and IgA) in malnourished and control children, which suggested that high incidence of infection associated with protein energy malnutrition was not a consequence of deficient immunoglobulins.

Following conclusion could be drawn from the present study:

1. In severely malnourished children intraneutrophilic metabolic and enzymatic functions of neutrophils were impaired.

2. In moderate malnutrition intraneutrophilic metabolic and enzymatic functions were not affected by nutritional status.

3. Microbicidal capacity of neutrophils was impaired in malnourished children with moderate to severe malnutrition.
4. Impaired neutrophil functions contributed to the bacterial high incidence of frequent and fatal/infections associated with protein energy malnutrition.

5. Impaired candidacidal assay also depicted increased susceptibility of malnourished children to fungal infections.

6. Humoral immunity was not affected by nutritional status in our study indicating that all immunological functions were not equally sensitive to altered nutritional status.