A-08 Cognitive performance at school entry of children in areas of different malarial endemicities in Sri Lanka

S Deepika Fernando, Renu Wickremasinghe, Kamini N Mendis,
A R Wickremasinghe
Malaria Research Unit, Dept of Parasitology, Faculty of Medicine, University of Colombo, Colombo 8

This study was done to determine whether repeated malaria infections has an impact on the cognitive performance of children living in malaria endemic areas of Sri Lanka.

A total of 542 Year one students, from the Anuradhapura, Kataragama and Galle districts were selected corresponding to areas of high, moderate and no malaria transmissions in Sri Lanka, respectively. 97% of the sample was below 7 years of age. A test developed by the National Institute of Education, Maharagama, to assess the entry performance of school children in year 1 was administered to the selected students within 1 month of starting school. The test measured the cognitive performance of the child with regard to writing skills, language and mathematical performance and the ability of each child to keep to the given task and the concentration.

The guardian/parent of the child was interviewed to obtain socio-demographic information and information regarding the past history of malaria. The average education and the average monthly income of both parents were significantly higher among the children from Galle. The height and weight of the children were measured by using standard methods, by a trained technician.

The children from Galle performed significantly better than those from either Anuradhapura or Kataragama on all aspects of the test. There was a significant difference for sentence structure ($p<0.05$) between the 3 areas (16.7, 16.9 and 20.5 in Anuradhapura, Kataragama and Galle respectively). However there was no difference in the mean value between students from Anuradhapura and Kataragama, but both were significantly different from Galle.

Further analysis of the students from the Anuradhapura and Kataragama districts revealed that average monthly income correlated significantly with ethic sense ($r=0.1237$, $p=0.032$), writing skill ($r=0.2068$, $p<0.001$), letter reading ($r=0.1802$, $p=0.001$) and sentence structure ($r=0.1224$, $p=0.029$). There was a borderline correlation between the average monthly income of the family and concentration ($r=0.0966$, $p=0.092$). There was no difference in the mean scores of all aspects of the test (i.e., language and mathematical performance, writing skills, concentration, task keeping and ethic values) in children who had suffered at least one attack of malaria as compared to those who have never had a malarial infection during childhood.

The results of this study does not suggest that there is no difference in the cognitive performance of children from Anuradhapura and Kataragama at school entry. It is not possible to conclude with certainty whether malaria does not affect cognitive performance as the study instrument was not validated to check whether it is sensitive enough to detect small differences. The better performance of children from Galle is probably due to the higher educational achievemen of the parents and higher socio-economic status.