Abstract

This research deals with spatial and temporal distribution of malaria in Anuradhapura district of Sri Lanka with special emphasis on natural and human environmental factors. The objective of this study is to examine the spatial and temporal pattern of malaria and the analysis of environmental factors those effect upon temporal variability giving attention on inter-annual and intra-seasonal variation of malaria occurrence. Environmental factors under the study are divided in to two categories as natural and human factors. Natural environmental factors are climate with their various elements such as temperature, precipitation etc, topography, vegetation cover and hydrology (streams, rivers and reservoirs), while the human environmental factors include seasonal practices of agricultural systems together with irrigation, settlement patterns, migration, level of education, income level, human living conditions and living behaviors of the people. To fulfill the objective, primary data were collected by means of household survey. Secondary data were obtained from various Institutes those concerned with malaria. Analysis of the data shows many patterns of malaria incidence associated with the natural and human environmental factors influencing the people subjected to occurrence of malaria in the area. Also the spatial distribution of malaria in all the MOH areas in the district was discussed with the aid of varying data tables and illustrations.

Further, the inter-annual pattern of malaria occurrence in the Anuradhapura district prevalence with great variances, during the period between 1972-1977. The number of malaria cases has drastically increased upto the very beginning of the said period and decreased between 1978-1981. After 1982 a number of malaria cases fluctuated until 2000. At that period the cases drastically

increased upto 124,233 cases. From 2001 to the next five years a number of malaria cases have dropped in the whole district.

The most risk prevalent areas of malaria were in the northern and eastern parts of the district. Padawiya, Rambewa, Horowupathana, Talawa, Kabithigollewa, Nuwaragam Palatha East and Central Nuwaragam Palatha have been identified as malaria provan MOH areas.

Data analysis on the natural environmental factors such as monthly rainfall seasonal rainfall, mean annual monsoonal weather, water bodies close to settlements and the distance of vegetation cover to settlements shows the occurrence of malaria is controlled by those factors. The most influential factors can be identified depending on the analysis of monthly rainfall and the occurrence of malaria cases that exhibits a very positive relationship between them in all the MOH areas of the district. Comparatively, highest number of malaria cases has been reported during the NE monsoon season. In contrast only a few number of malaria cases was reported during the SW monsoon period. Malaria mosquitoes are favored by optimum temperature in between 28.1- 28.8° C. The people living in houses of >50 m from water bodies are susceptible to malaria. The risk can be minimized if people are settled away from the water bodies. Human environmental factors show some positive relationship with the malaria occurrence. These factors are education level, income level, occupation, location of settlements, status of houses and behavior pattern which determined the degree of the prevalence and spread of malaria making spatial and temporal patterns.

It is important to note here that it is necessary an integrate multiple approach to minimized distribution of malaria in the Anuradhapura district in an effective manner. Malaria mitigation is to

be considered as a way to enhancing quality of life and human development and also to keep the environment clean.