Disease Occurrence and Socio-demographic Profile in Self-perceived Cases of Malaria in Fringe Areas of a Cantonment in India

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Abstract

Background: Fringe areas of cantonments may report less cases of Malaria due to availability, implementation and utilization of anti-malaria preventive and control measures in the cantonment.

Methods: In the present study, an effort was made to find out as to what percentage of self-perceived cases is actually confirmed by a positive blood smear and their common socio-demographic profile.

Study design and variables: House to house survey was carried out by the authors. The variables used were self-perceived and confirmed cases of Malaria, socio-demographic profile including duration of stay, location of residence, type of family, living status, age and sex distribution, marital status, education, occupation and social class.

Results: Analysis was carried out with proportions. Of the 210 self-perceived cases, only 2 cases were confirmed by blood smear exam (0.95%, SPR 0.0137). The common socio-demographic profile that emerged was that of relatively young and educated persons from nuclear families in the middle social class who perceived their fever as malaria.

Conclusion: There is a constant need for evaluating socio-demographic profile of fever cases in different communities and thus implement programmes to enhance awareness levels about communicable diseases like malaria and available anti-malarial services.

Keywords: Self-perceived cases of malaria; Blood slide examination; SPR; Social class; Anti-malaria services

Introduction

Malaria had devastating ramifications since antiquity. More than a hundred countries in the world today are considered malarial with approximately 2500 million of the world’s population at risk. Reports indicate occurrence of over 300–400 million cases annually of which approximately 1 million die [1]. In India, in spite of a comprehensive National Malaria Control Programme, since as early as 1953, incidence has not come down as expected [2]. Eighty-five percent of India’s population is at risk. Poor knowledge about malaria, inadequate control measures and poor utilization of available anti-malarial services are the important reasons [3,4]. Since 1999 the Government India has renamed the programme as National Anti-Malaria Programme. Presently, National Vector Borne Disease Control Programme has been implemented in States/Uts under which Disease Management, Integrated Vector Management and some important Supportive Interventions are being stressed upon.

Fringe areas of cantonments are supposed to benefit and incidence and prevalence of diseases like malaria are both supposed to be less, due to availability and optimum utilization of almost all the anti-malarial services within cantonments. Necessary treatment facilities exist in their service hospitals and health centers. The relation of socio-demographic profile of a particular community to the incidence of disease is required to be studied to identify the common profile of the clientele to be targeted for implementation of preventive and control measures in a more effective manner.

Material and Methods

The present study was carried out in the areas around the Ahmedabad cantonment, over a period of nine months. The cantonment is in the North- eastern side of the city spread over almost 6 sq km area of level terrain. The adjacent areas known as Sardar Nagar, Sadar Bazar, Meghani Nagar, etc are congested and busy. Though drainage facilities are adequate there are areas of some water logging during rains.

The population consists mostly of businessmen, factory workers, office workers and few service personnel residing with their families. Many have come from outside the city in search of jobs and businesses. Some are staying single or without their full family. The medical facilities existing in these localities are in the form of malaria clinics in the Medical College, Community health centers, a Cantonment board clinic and private practitioners. The city Municipal Corporation is responsible for carrying out anti-larval and anti-adult drives against the mosquito.

Approximately 8000 families were interviewed, at random, by a house to house survey, after being informed about the necessity and nature of the survey. Individuals, who had raised body temperature (more than 99°F) with or without other symptoms for a minimum duration of 48 hrs, were asked about their perception of the cause of fever. Every case of fever, who perceived the cause of same to be malaria, was interviewed further about his/her utilization of anti-malarial services, by using a pre-tested proforma. In case the individual was less than 15 yrs of age his/her parents or relative were queried. A blood smear from the finger tips of all the fever cases was also collected and sent for malaria microscopy to a reliable civil laboratory, nearby. The collected data was compiled and statistically analyzed.

Results

Disease occurrence in the community

The study covered 8146 residential families including 2570 family...
units and 2605 single member units i.e. a representative sub population of 14573 amongst almost 3-4 lakhs inhabiting the fringe areas of the Ahmedabad cantonment.

262 fever cases existed at the time of interview of whom 210 (80.15%) were self-perceived cases of malaria. Incidence of such self-perceived cases was therefore 14.41/1000 population. These 210 cases belonged to 191 families implying that there were 1.09 cases of self perceived malaria per 'affected' family. There were subsequently only 2 cases which were confirmed as malaria by our blood smear examinations. This meant that 0.95% of all the cases could be confirmed as malaria. The rest could be cases clinically simulating malaria or of fever due to other causes. Thus, the incidence of confirmed cases of malaria was 1.37 per 1000 population.

Socio-demographic profile of cases: These were covered under the following headings.

Duration of stay: In 139 (66.2%) cases, duration of stay in that particular locality was for 2-4 years, whereas it was less than 2 years in 43 (20.5%) cases. In 28 (13.3%) the stay was for more than 4 years.

Location of residence: 192 (91.4%) cases resided within a Km distance from the cantonment, 16 (7.6%) within 2-3 kms of the cantonment area and only 2 (1%) cases were well outside the radius of 3 kms.

Type of family: Majority of cases were from nuclear families (203, 96%), 2 (1%) were from joint families and 5 (2.3%) cases from extended families.

Staying status: Most of those surveyed that is 204 (97.1%) were living with their families, 5 (2.4%) were staying by themselves that is single, and only 1 person (0.5%) was staying with his relatives.

Age and sex distribution: Maximum cases that are 68 (32.4%) were in the 5-14 year age group. The age occurrence in descending order was 20-24 years (25 or 11.9%), 30-34 years (24, 11.4%), 15-19 years (23, 10.9%), 25-29 years (19, 9.1%), 35-39 years (15, 7.1%) and 0-4 years (14, 6.7%). There were 93 (44.3%) male and 117 (55.7%) female cases in this study.

Marital status: This was recorded only for those aged more than or equal to 15 years of age. In the case of males, maximum were below 15 years of age (53, 56.9%) and amongst females, married ladies formed the maximum numbers (74, 63%) (Table 1).

Educational status: This was studied in the age group of 5 years and above. Of all the cases there were 4 (5%) who were illiterates, 18 (9.1%) just literates and 174 (88.8%) were educated beyond primary level (Table 2).

Occupational status: This was separated into 2 broad groups. For those below 15 years of age, their fathers’ occupation was noted and for those above 15 years age, their occupation, if any, was recorded (Table 3).

Social class: Modified Prasad’s socio-economic classification [5,6] method of 2008 was used. Majority of cases were from social class – II (91, 42.5%), followed by those in Social class – III (44, 21.2%), Social class – IV (23, 10.7%) and then social class – I (19, 9.1%). In the cases included in the study, none belonged to social class- V (Table 4).

Discussion

Febrile illness suspected to be malaria requires rapid recognition and institution of appropriate treatment, regardless of whether the patients choose to treat themselves or seek attention at a health facility [7].

In the present study of 210 self perceived cases of malaria, incidence is 14.41 per 1000 population. In comparison to various studies carried out in India [3,8,9] and African countries [7,10], this incidence is lower. This could be attributed to the fact that the population in the fringe area of a cantonment is benefitted, as anti-malaria precautions are practiced in a better and regular fashion in cantonments as compared to other areas in a major city like Ahmedabad . However some more such comparative studies could be undertaken in this regard.

Since only 2 cases were confirmed by blood slide examination in this study, SPR is 0.0137 which compares contrastingly with Jotkar’s study in Ratnagiri, Maharashtra [8] where SPR ranged from 0.2 to 0.785. Nearness of the ‘fringe’ population to the cantonment where all anti-malaria services are available could be an important factor that explains this fact. The large number of fever cases which are not correctly diagnosed or go undiagnosed should be an area of concern.
The general belief that all fevers are due to malaria is also not true and needs to be addressed at the community level. Awareness about malaria therefore has to be disseminated constantly to the community by innovative methods especially in pockets where prevalence is high. Misconceptions that any fever could be malaria needs to be erased from people’s minds. Meticulously following the correct and latest treatment modalities would also reduce the overall burden of malaria morbidity in the community.

The common socio-demographic profile of cases or their guardians was that of a relatively young, educated person from a nuclear family, belonging to the middle social class. An almost similar socio-demographic profile was observed by Yeneneh [11] amongst 200 Ethiopian women in a KAP study on anti-malaria drug utilization. This could be a pointer that cases of self-perceived malaria or any other illness for that matter belong to an almost identical background and such persons should be targeted specifically within any IEC program. Since they were mostly young, awareness drives and correct treatment modalities would greatly influence the overall morbidity profile of the community.

The problem of self-perceived malaria is obviously a multi-faceted one and the importance of the prominent socio-demographic factors in its etiology therefore cannot be under-estimated. Variables enumerated in the present study could be evaluated in detail to improve knowledge about the disease, targeting that chunk of the population in a particular community, that is most vulnerable, to ensure prevention and control of this and many other such illnesses that plague our society. Misconceptions need to be removed. All this will ultimately help in prevention, early diagnosis and proper treatment of fever cases in the larger perspective of things, reducing the overall morbidity and mortality load in the country.

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References