Original Article

LOUSE-BORNE RELAPSING FEVER PROFILE AT JIMMA HOSPITAL, ETHIOPIA: A RETROSPECTIVE STUDY

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ABSTRACT

Background: *Louse-borne relapsing fever has been restricted to countries with poor socio economic status, the most important foci being Burundi, Rwanda and Ethiopia. Borrelia recurrentis is the etiologic agent for louse-borne relapsing fever and occurs as epidemic under conditions of overcrowding, poverty, draught and famine.*

Objective*: To assess the Louse-borne Relapsing Fever profile in Jimma Hospital and suggest practical control measures to alleviate the disease burden of the community in the region.*

Design*: All RF cases recorded in Jimma hospital for the last five years (1997 to 2001) were used to investigate the pattern of the diseases in relation to sex, coffee growing seasons, and mortality rates.*

Methods: *A total of 617 patients were included in the study from the hospital records.*

Results: *The number of louse-borne relapsing fever cases recorded during the study period showed both sexes run the same level of risk of contracting the disease ($p>0.05$, $n=5$). On the other hand, the number of cases during the dry season was relatively higher than the wet season in the same year and this difference was statistically significant ($p<0.05$, $n=5$). The observed seasonal variation in the number of cases appears to be mainly attributed to the coffee harvesting period coinciding to the dry season. The number of cases as well as mortality rate declined from 1997 to 2000 but a sudden increase in both parameters was observed in 2001. This may be attributed to the coffee price fall and the ensuing deterioration of living standards and personal hygiene among the rural communities.*

Conclusion*: A notable increase in number of cases during the year 2001 as well as the sudden upsurge of the mortality rate to 6% may have been caused from the combined*

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effects of poverty, misdiagnosis and late arrival of patients to hospitals. Poverty alleviation and provision of free of charge health care scheme should be instituted in the region to control the disease.

INTRODUCTION

Louse-borne relapsing fever has been restricted to countries with poor socio economic status, the most important foci being Burundi, Rwanda and Ethiopia (Tesfayohannes 1989). The endemicity of louse-borne relapsing fever in Ethiopia had been reported by Italian investigators as early as 1915 and several thousands of cases were reported annually to the MOH between 1981 and 1990 with the largest number in 1983 (43, 727) when an epidemic occurred in Wolayta region (Parry and Griffin 1993).

Although Louse-borne Relapsing Fever in children is known to be relatively mild with excellent prognosis (Mekasha 1992), the 5% mortality rate in treated cases (Hodes 1983) can be substantial in communities where mortality from other causes of death is much common. *Borrelia recurrentis* is the etiologic agent for louse-borne relapsing fever and occurs as epidemic under conditions of overcrowding, poverty, draught and famine. Previous reports indicate the disease has been most prevalent in India, Egypt and parts of East Africa especially Ethiopia (Chessbrough 1984). Baseline data related to louse born relapsing fever in Jimma town is scanty.

Therefore, this study was carried out to assess the Louse-borne Relapsing Fever profile in Jimma town using the University Hospital data and suggest practical control measures to alleviate the disease burden of the community in the region.

MATERIALS AND METHODS

A total of 617 patients were included in the study from the hospital records. The data

for this study was obtained from Jimma Hospital patient record section and the last five years (1997-2001) and cases were used since previous data record was very poor and incomplete prompting its exclusion from the study. During the study periods a complete and systematized record of patients was

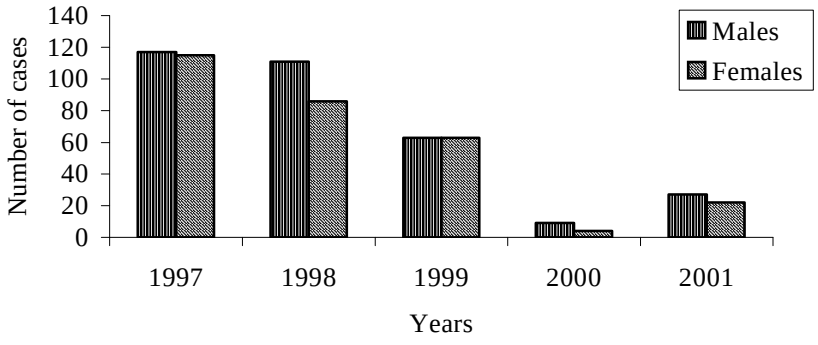
available in the University Hospital record section. Therefore, the last five years data set was assumed to be appropriate for studying the pattern of the louse-borne relapsing fever in the region in relation to sex, dry and wet seasons. In this cross-sectional and retrospective study, all cases diagnosed in the Hospital from 1997-2001 were included. Data analysis was made using Minitab programme (Version 10) and Chi-square was used to test the statistical significance of observed differences between the variables of interest.

Keywords: Louse-borne Relapsing fever, Jimma, Endemicity

RESULTS

The relative number of relapsing fever cases between males and females is shown in figure 1(top). Generally many more males appear to be relatively more affected compared with females. However, this variation was not found to be statistically significant ($p>0.05$, $n=5$). Similarly, comparison was made between the number of cases recorded in each year between the dry and wet season as shown in fig 1(bottom). The number of cases during dry season was generally higher than those during the wet season in the same year and this variation was statistically significant ($p<0.05$, $n=5$). The mortality rate in 1997 was 2%, and decreased to 1% in the subsequent 2 years reaching to a point where no mortality case was recorded in 2000 (see fig 2 and 3). However, the mortality rate suddenly increased to 6% in the year 2001, higher than the 5% mortality rate reported in literature for louse-borne relapsing fiver (Fig. 3, bottom).

Fig 1. Louse-borne relapsing fever profile between males and females (top) and dry and wet seasons (bottom) at Jimma hospital from 1997-2001, Jimma Ethiopia.



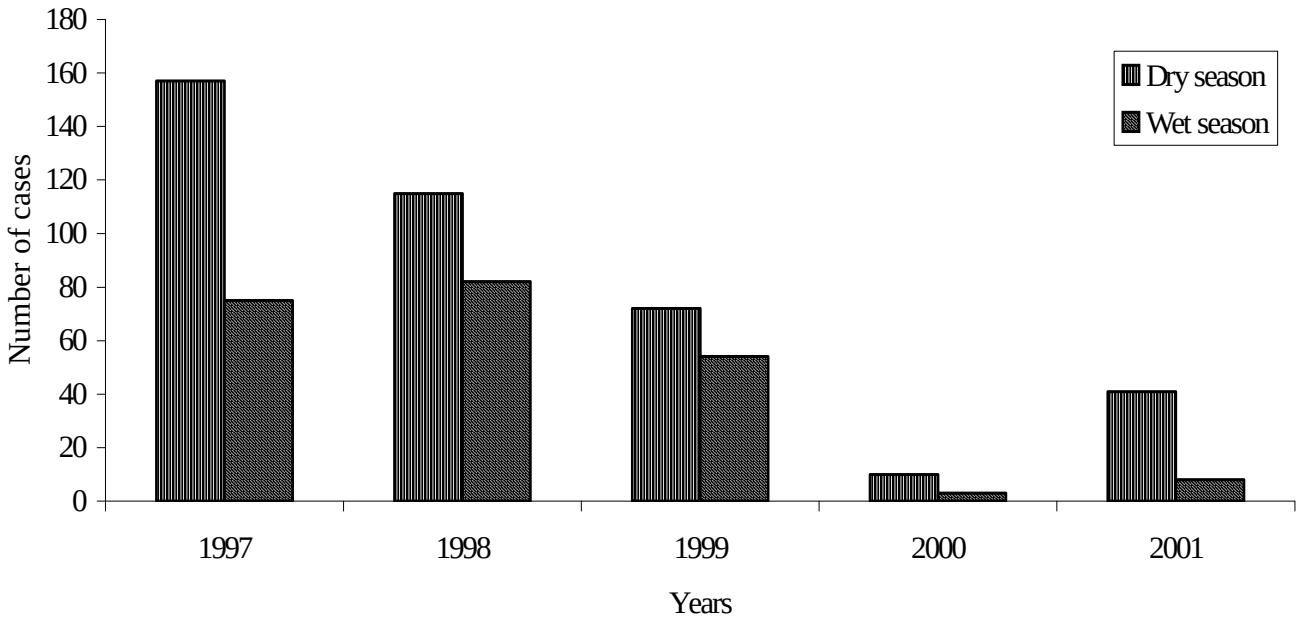


Fig 2. Mortality and recovery rate of louse-borne relapsing fever in 1997 (top) and 1998 (bottom) at Jimma Hospital, Ethiopia.

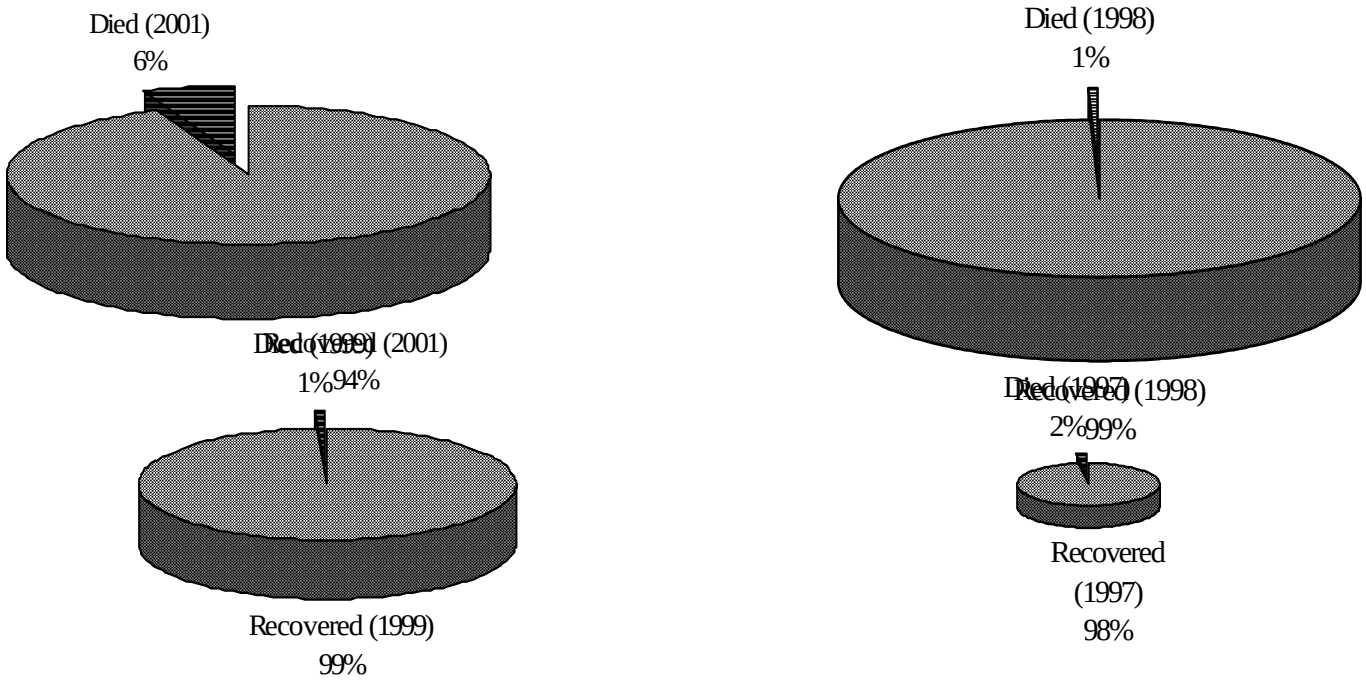


Fig 3. Mortality and recovery rate from louse-borne relapsing fever in 1999 (top) and 2001 (bottom) at Jimma Hospital, Ethiopia. Data for the year 2000 is not shown here since 100% recovery was achieved in that year.

DISCUSSION

Although visual inspection of the graph depicting the incidence of relapsing fever between the two sexes suggest relatively more males are affected than females, the statistical test shows both sexes run equal risk of contracting the disease. Generally a clear trend of decline in the number of cases has been noted from 1998 to 2000. It may be difficult to attribute the observed decline to a single factor owing to the relatively short nature of the observation period. Moreover, this study did not disaggregate patients by residency and thus does not lend itself to make comparison between rural and urban profiles of Relapsing fever. Prisons, for instance, are known to be the primary loci where cases of Relapsing fever are frequently encountered. Nevertheless, in the dry season data coffee-harvesting seasons were included and thus daily labourers and vagrants coming to the region from highland areas where louse-borne relapsing fever is common might contribute its share for the relatively higher cases recorded relative to the wet season.

In general, economic, environmental and other social factors might be involved in the observed decline and a slight increase in the initial and final periods of the study. This study shows the problem of Relapsing fever in the region is real but in order to disentangle which of the above factors is more influencing the disease prevalence and incidence in the region and suggest possible control measures, a more systematic study has to be designed.

The sudden upsurge of the mortality rate to 6% after a rather low level in the preceding years may arise from several possible factors. However, lack of personal hygiene due to lack of knowledge and low level of socio-economic condition might be the most important factor that results in such situation. As it is usually the poor who are victims of the disease they may turn away from seeking medication early but they may rush to hospital at an advanced stage of the disease resulting in poor prognosis thus increasing the rate of mortality.

In conclusion this finding suggests that relapsing fever is a public health threat in the region in both dry and wet seasons of the year. Under a scenario where living conditions are not improving for the majority of the people, the disadvantaged segment of the communities will always consider personal hygiene as a second priority in their daily lives and medical seeking behaviour as a luxury. As a result, Relapsing Fever will always be around to strike at any time when conditions are favourable. To disentangle which of the socio-economic and environmental factors are more important in influencing the disease dynamics in the region and suggest possible control measures, a more systematic study is recommended.

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