

EVALUATION OF ALDEHYDE TEST AS A SCREENING METHOD FOR KALA AZAR CASES

N. Muazzam*

Introduction

Kala-azar (KA) or Visceral Leishmaniasis (VL) is a chronic debilitating systemic disease. It has a world wide distribution and recently there has been a great upsurge in the incidence of Kala-azar.¹ Since 1970, the prevalence rate per million is rapidly increasing in Bangladesh.

Still now in our country, the diagnosis of Kala-azar depends mainly on clinical findings. Aldehyde test (AT), CFT and detection of the parasite in blood, bone-marrow or splenic aspirates, Serological tests like Immuno-fluorescent test, Direct agglutination test (DAT) and ELISA test are now coming up. But the serological tests are very costly for our poor people and these are not yet available to the rural people, who are the most affected group. These tests are more sensitive and specific but, these tests can be done only in the advanced laboratories of Dhaka as the required sophisticated instruments and experienced medical personnels are available there.

Detection of the causative parasite, *Leishmania donovani* (LD bodies) in bone-marrow or splenic aspirates is hazardous under field conditions. Direct microscopy often gives negative result in known positive cases (Latif et al, 1979)². Cultural methods take days or weeks to give a confirmed result. So the present study aims to evaluate the Aldehyde test for detecting the Kala-azar cases in field conditions for the rural people.

Material and Methods

About 5 ml of venous blood was collected under strict aseptic condition from 120 parasitologically positive Kala-azar patients, 100 clinically suspected cases and 50 sick control and 100 healthy control cases. Serum was separated and the Aldehyde test (AT) was done with each serum according to the methods of Napier, 1922³ and Cruickshank et al, 1975⁴

Results

Table I shows the results of AT in different groups of subjects. A T was positive in 96% of the parasitologically positive cases of Kala-azar, 56% of clinically suspected cases of Kala-azar and 4% of sick controls. All the healthy controls gave negative result.

* Dr. Naima Muazzam, MBBS, M. Phil (Micro), Associate Professor of Microbiology, Dhaka Medical College.

Groups	Number of cases	Number AT positive cases
Parasitologically positive cases	120	115(96.00%)
Clinically suspected cases	100	56(56.00%)
Sick control cases	50	2(04.00%)
Healthy controls from endemic area	100	0(00.00%)

Table I- showing the results of Aldehyde tests in different groups.

Discussion

Kala-azar or visceral leishmaniasis has a worldwide distribution in the tropics and subtropics. Recently there has been a great increase in the incidence of KA and in 1977 about 400,000 cases have been recorded throughout the world,⁵ one quarter of which occurred in Bihar, India.⁵ Seventy-five to ninety-five percent of the patients die within a period of 2 years if left untreated.⁶ Though demonstration of parasites is the most confirmatory test for the diagnosis of the disease, serodiagnostic methods are now replacing parasite isolation techniques.⁷

In Bangladesh, the disease is endemic in areas where advanced laboratory services are not yet available to do the serological tests to diagnose the cases. So, for screening purpose, Aldehyde test can play a very important role to screen the cases during field survey, as the test is very simple, easy and costs very little. Only those who give positive AT can go through other expensive confirmatory tests.

The striking hyperglobulinemia is the basis of aldehyde test, which is an age-old diagnostic test recommended for Kala-azar, before the specific serological diagnosis was available.^{2,3} But due to high globulin level in other diseases, AT may give false positive results. Out of 120 parasite positive cases in our study, AT was positive in 115 (96%) cases. In 100 healthy cases from endemic area, AT was negative in all cases while in 50 sick control group, AT was positive in 2 (2%) cases only. So both the sensitivity and specificity of AT was 96% in our study which correlates highly with the finding of Napier, who found AT positive in 89(97.8%) cases out of 91 parasitologically positive Kala-azar cases. But he did not get any false positive reaction with aldehyde test among 24 diagnosed cases of malaria and leukaemia. In other control study groups however, he found AT positive in only one case of advanced tuberculosis. Thus he observed 2% false positive result with AT which gave 98% specificity.⁸ Our result also correlates with the findings of Rahman and Islam (1983)⁹ who found AT 98.3% sensitive and 91.2% specific.

We know that kala-azar is a chronic disease and patients generally remain unaware of the disease for a long time and come to doctors to seek treatment long after the actual onset of the disease. More over, most of the sufferers are not only the low income group but also have very poor health education, as most of them belong to our uneducated section of the population.

In confirmed Kala-azar cases AT never gives negative result and the false positive

cases never give as opaque colouration as in Kala-azar cases. So, during the field treatment in rural situation of these group of people of our society, AT can play the most important role to screen the Kala-azar patients from other cases of similar clinical signs and symptoms.

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Due to over emphasis on family planning - rather birth control the problem of infertility remains a social problem all over the world. So, proper investigation of infertility is also necessary.