



DETECTION OF *WUCHERERIA BANCROFTI* INFECTION USING SURVEY METHOD OF SELECTED VILLAGES IN NANDED REGION

SurveP.R^{1*} and Chavan D.B²

¹Department of Zoology Arts, Commerce and Science College Gangakhed.431514 India

²Department of Microbiology Arts, Commerce and science college Gangkhed.431514 India

ARTICLE INFO

Article History:

Received 6th August, 2017

Received in revised form 25th September, 2017

Accepted 3rd October, 2017

Published online 28th November, 2017

Key words:

Wucheriabancrofti, elephantiasis, NFCU, Survey method, biochemical study

ABSTRACT

Filaria worms (*wucheriabancrofti*) cause the elephantiasis that leads to swelling to the body parts where the parasite resides. This worms transfer by biting of mosquitoes to humans. This study was carried out by conducting survey and collecting blood sample of Nanded region, including Bhokar, Kinwat, Kandahar, selu, jalkoat, wanjarwadi, petwadajetc, this study revealed that about 58.16% people were found positive for the parasite. The chronic condition of lymphatic filariasis, namely elephantiasis (lymphedema) and hydrocele was prevalent in the study population. Pathological studies of affected people showed that in all cases haemoglobin, leucocytes counts are normal whereas ESR is found to be increase in all studied patients, Biochemical analysis revealed that blood urea(mean=26.4mg/dl), blood glucose(mean=73.28mg/dl), serum albumin (mean=0.15mg/dl), serum creatinine (mean=0.68mg/dl), cholesterol (mean 1.36mg/dl), albumin (mean=2.6 mg/dl), globulin (mean=2.3mg/dl), alkaline phosphate (mean=153.22U/l) found to be normal. This study showed that there is no much effect of the lymphatic filariasis on haematology and biochemistry of studied patient. This data was shared with the National Filaria controlling Unit Nanded and it helped NFCU unite to control the epidemic of Filaria.

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INTRODUCTION

Lymphatic filariasis is a parasitic disease caused by microscopic, thread-like worms. The adult worms only live in the human lymph system. The lymph system maintains the body's fluid balance and fights infections. Lymphatic filariasis is spread from person to person by mosquitoes [1]. Lymphatic filariasis is a leading cause of permanent disability worldwide. Communities frequently shun and reject women and men disfigured by the disease [2]. Affected people frequently are unable to work because of their disability, and this harms their families and their communities [3].The filarial worm is a dreaded human parasite human blood and lymph. It is a diagenetic parasite completing its life cycle in two host's man and mosquitoes [4]. This disease is very common to the tropical region and Africa. When the mosquito bites to human the L3 larvae enter and the process of disease starts [5.6.7]

The adult worm live coiled up in the lymph gland and lymph passage of human where they often obstruct the flow of lymph and cause People with the disease can suffer from lymphedema and elephantiasis and in men, swelling to the scrotum, called hydrocele[8.9.10].

The objective of our study was to study survey and detection of elephantiasis cases in Nanded region as well as pathological changes in the human host of selected population in the region.

MATERIALS AND METHODS

Selected research area

In Nanded region, Hottal, HippargaRao, Gudsoor, Dhondi are selected. And a sample was collected by providing questionnaires' to the patients, a sample collected in EDTA tubes and was put in an ice pack and transported to laboratory for analysis.

Parasitological examination

It includes detection of Microfilaria in the blood sample. For this screening, 20 cm of finger –prick blood can be dried on slid, stained and examination under a microscope in accordance with the standard procedure.

Pathological studies

The pathological parameter was estimated by Clinical Blood Testing Analyzer CBC Machine and result was recorded.

Biochemical analysis

Biochemical analysis such as urea, creatine, bilirubin, cholesterol, alkaline phosphate test was carried out as

*Corresponding author: SurveP.R

Department of Zoology Arts, Commerce and Science College Gangakhed.431514 India

described by Mackie and McCartney practical medical Microbiology manual.

RESULTS AND DISCUSSION

Total collected 600 peoples from Nanded region for this test, out of this test 58.16% found be microfilariae positive while 41.84% found to be negative. Blood smeared for *wucheriabancrofti* showed in fig 1 was obtained by the labomade light microscope with 10 x eyepieces and 100x oil immersion objective lens.



Fig 1 Microscopic image of *wucheriabancrofti*

Table 1 showed the pathological parameters. The ESR (erythrocyte sedimentation rate) is increased in all the positive samples of the range 0.7 to 20mm/hr.

Table 1 Table showing biochemical estimation of patients (n=10)

| variable | Range | Mean | Median | SD | variance |
|-----------------------|----------------|------|--------|------|----------|
| Blood urea | 18-30 | 22.4 | 21.2 | 70.5 | 2.3 |
| Total serum bilirubin | 60-82mg/dl | 77.7 | 74.0 | 207 | 4.3 |
| Serum creatinine | 0.75-0.90mg/dl | 0.83 | 0.83 | 0.03 | 0.06 |
| Alkaline Phosphate | 163-182 IU/L | 178 | 103 | 65.2 | 2.6 |

This is an indication of inflammation in elephantiasis. Blood urea in the serum of the patient was found to be normal in all the studied sample of the range of 15-38mg/dl .serum bilirubin was found in the normal range of near about all filarial cases. Serum creatinine was found to be normal in all the individuals. Cholesterol level was increased in 5 cases. Alkaline phosphate enzyme test to measure the amount of the enzymes ALP in the blood. ALP produced primarily produced in the liver and in bone.it is also produced by the placenta of pregnant women and to the lesser extent by intestine and kidney, normally; the liver produces more ALP than the other organ.

Table 2 Haematological analysisof lymphatic filariasis patients

| Variable | Range | Mean | Median | Variance | Standard deviation |
|-------------|-------------------------------|-------|--------|----------|--------------------|
| RBC | 4.47-5.30 mil/mm ³ | 4.26 | 4.5 | 3.3 | 0.53 |
| MCW | 74.0-83.9 um ³ | 78.16 | 77.3 | 15.11 | 3.8 |
| RDW | 9.7-11.2% | 10.16 | 9.6 | 0.23 | 0.61 |
| WBC | 3.0-5.4 103/mm ³ | 3.3 | 2.3 | 0.70 | 0.7 |
| HGB | 103/mm ³ | 11.90 | 10.10 | 4.5 | 1.2 |
| TLC | 12.1-14.7 g/dl | 470.3 | 467.3 | 3.4 | 0.6 |
| Neutrophil | 3600-5400/mm ³ | 55.60 | 54.30 | 12.11 | 3.1 |
| Lymphocytes | 49-59% | 40.23 | 38.40 | 12.84 | 1.2 |
| Monocytes | 34-43% | 3.3 | 2.1 | 3.7 | 1.1 |
| Eosinophils | 03-04% | 4.3 | 3.9 | 1.2 | 0.5 |
| PVC | 03-04% | 38.40 | 37.60 | 12.32 | 0.67 |
| | 35.2-44.5% | | | | |

In this study, almost in all cases enzyme activity was found to be normal. Effect of parasite on the human host was studied by Stone *et.al* [17] and showed the ESR was increased from their studies. DC [1]) reports Lymphatic Filariasis reported the physiological data our finds is in accordance with [11, 13, 17] and the CDC data. ShenoyRK, Suma TK [8], *et al* reported the certain pathological changes in filariasis patients, our find is in accordance with their studies. Filariasis parasite only infects lymphatic system and accumulation in lymph that leads to swelling of the affected area like hydrocele. This research data was shared with NFCU. The record of NFCU showed that in 1985 the rate of causes was 11.87% and now is it found to around 0.8%, this study helped NFCU to lower the incident of Filariasis in prevalent area and they distributed drug to the area to control the epidemics of the disease. Hence this research study is the importance of the managements of Filaria disease in Nanded region.

CONCLUSION

This survey study studies to conclude that in the selected region 58.16 % of people are affected by the disease and the male are more as compared with the female. This data revealed that with certain (ESR) exception all other studied parameter is in the normal range.

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How to cite this article:

SurveP.R and Chavan D.B (2017) 'Detection of Wuchereria bancrofti Infection Using Survey Method of Selected Villages in Nanded Region', *International Journal of Current Advanced Research*, 06(11), pp. 7581-7583.
DOI: <http://dx.doi.org/10.24327/ijcar.2017.7583.1185>
