

PREVALENCE OF MICROFILARIA IN THE OMERGA TALUKA, OSMANABAD DISTRICT,
MAHARASHTRA STATE, INDIA

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ABSTRACT

Filariasis or Elephantiasis is a major public health and socio-economic problem in India. Filariasis is vector-borne disease that are caused by thread like filarial nematode worms and transmitted by mosquitoes. They occur in the poor in underdeveloped regions of South America, Central Africa, Asia, the Pacific Islands, and Caribbean. The nematode microfilaria (*Wuchereria bancrofti*) affects more than 115 million people worldwide. Filariasis or Elephantiasis is a major public health and socio-economic problem in India, approximately 420 million people reside in endemic areas and 48.11 million are infected (Michael et al, 1996). Methods- Study area: - The study was carried out in the area includes different localities of Osmanabad district (MS), India. Where the lymphatic filarial is endemic. The proposed study in filariasis patients was carried out during the period of June, 2013 to March, 2015. The protocol was approved by Ethical committee of the institute and written consent was obtained from District Medical Officer (DMO) of Osmanabad district (MS), India. Permission letter no. Varisht/17/10/2014-dated. A total 16 villages includes 14,945, individuals were included in the study and data on microfilaria infection prevalence was collected repeatedly undertaking follow-up cases with drug administration, cross-sectional parasitological survey in the same area for two years, 2013 and 2014. The monitoring of results revealed that the disease lymphatic filaria was commonly prevalent in the region, different localities of Osmanabad district (MS), India. Where the lymphatic filarial is endemic. Seasonal to seasonal variation and microfilaria rate was 7.5%, 7.6% in the year 2013 and 2014. Overall microfilaria rates were higher in males (8.7%) as compared to females (6.4%) (The number of parasitemic cases, divided by the total number of blood smears made). The analysis of data showed that the occurrence of microfilaria parasites variable according to seasons. The high incidence, intensity, density and index of infection of all the nematode parasites (microfilaria) occurred in summer season followed by rainy seasons where as lower infection in winter seasons. After the analysis of data the present study can be concluded that the high infection of microfilarial parasites (incidence, intensity, density and index of infection) was occurred in summer season followed by winter where as low in monsoon season. This type of results indicated that environmental factors were influencing the seasonality of parasitic infection either directly or indirectly. Therefore mass drug administration programmed was carried out for the for the control of microfilaria, the control of vector –borne diseases remain difficult. Therefore, interruption of transmission still relies on vector- control measures. A coordinated, consistent, integrated vector management approach is needed to control filarial.

Key words- Microfilaria, prevalence, Omerga taluka, Osmanabad district, Maharashtra state, India.

In India, filariasis has been recognized as disease of National importance because of continuous spread of disease and protracted suffering and disability caused in the affected population. India contributes to 40% cases of bancroftian filariasis in the global scenario. Filariasis is one of the major parasitic infections of mankind, which is widely spread throughout the tropical and subtropical places. Filariasis that are caused by thread like filarial nematode worms and transmitted by mosquitoes. They occur in the poor in underdeveloped regions of South America, Central Africa, Asia, and the Pacific Islands. The nematode microfilaria (*Wuchereria bancrofti*) affects more than 115 million people worldwide. Filariasis or Elephantiasis is a major public health and socio-economic problem in India (Das and Pani , 2000; Das and Pani, 2001; Ramaiah *et al.*, 1996), approximately 420 million people reside in endemic areas and 48.11 million are infected (Michael *et al.*, 1996).

The World Health Organization (WHO) has identified filariasis as second leading cause of permanent and long-term disability next only to mood affecting disorder. In India, filariasis has been recognized as disease of National

importance because of continuous spread of disease and protracted suffering and disability caused in the affected population. India contributes to 40% cases of bancroftian filariasis in the global scenario. Elephantiasis is a more intense in people who don't live in this area, because many native people have built up some immunity. Symptoms of elephantiasis include fever, shaking chills. Sweating, headaches and vomiting.

MATERIALS AND METHODS:

Study area: - The study area includes different localities of Omerga taluka of Osmanabad district (MS), India.

The proposed study in filariasis patients was carried out during the period of June, 2013 to May, 2015. The protocol was approved by Ethical committee of the institute and written consent was obtained from District Medical Officer (DMO) of Osmanabad district (MS), India. Permission letter No. Varisht/17/10/2014-dated.

A total 10 villages¹⁴, 945 individuals were included in the study. During the study first, interview with District Medical Officer (DMO) of Osmanabad district (MS), India, to confirm the filariasis infected populated area. In the Osmanabad district, Omerga taluka, survey area was selected for study of prevalence microfilariasis. Under guidance of Omerga taluka medical officer's camp was arranged for night survey for Conventional Night blood smears because of the nocturnally periodic type, where, their mosquito vectors was most likely to bite, also decreased peripheral temperature may attract more mf, which was the main strain in India shows a marked peak of mf density in the peripheral blood circulation, during the night hours.

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Microfilaria is a nematode parasite found in the lymphatic system of host (human), diagnosis was based on the demonstration of parasite which includes the field work, was carried out. Surveys at night and Conventional Night blood smear examination. Microscopic examination of 20 mm³ stained blood film was prepared still the best diagnostic technique.

Collection of Blood Sample for microfilarial (mf) detection: -

For sample collection, informed consent was obtained from DMO. At night a door-to- door survey was conducted in the selected different localities of seven villages in Omerga taluka of Osmanabad district (MS), India. In the selected different localities of seven villages includes individuals, adults age of below 65 year and children's above 5 years of age. During the survey of host history includes, village, name, sex, socio-economic status and during the study of follow-up cases, diethyl carbamazine citrate consumption (Rokade, 2012).

Identification and Collection of Blood Sample

During the survey of subjects (hosts) were examined under the supervision and guidance of Government Medical officers. The diagnosis of Lymphatic Filariasis patients was done morphologically and clinically with relevant laboratory investigations by clinicians. Diagnosed and confirmed by physician and surgeon. The definitive clinical diagnosis was taken in support of evidences like history of patient having lived in Filarial endemic area and the presence of mf positive individual in the same home External examination of body, if any infected sing and symptoms of filariasis and other causes of subjects. With finger prick blood this test is found to be nearly as sensitive as blood examination.⁽⁵³⁾ With finger prick blood film (smear) of 20 mm³ on a clean glass slide at 9 pm to 2am and slide was marked with code and number.

Fixation, Storage, Staining and mounting of mf

The slide was dried overnight, then dehaemoglobinized rapidly and gently, dried again, fixed with methanol and stained with Wright's stain for 30 minutes.

Examination

Microscopic examination of 20 mm³ stained blood film was the best diagnostic technique for the field work. (21) Observation of slides under Binocular microscopic examination and recorded infected and no infected slides i.e. date of blood sample collected and date of blood sample examined and number of parasites.

RESULTS AND DISCUSSION

The results are shown on table 1.

Table No.1:- Prevalence of Microfilaria in Omerga taluka, Osmanabad Distict (MS), India.

Name of Month	Sr.No. of Blood sample	No. of the host Examined	No. of the Male host Examined	No. of the Female host Examined	No. of the host Infected		Total No. Parasites Blood sample	Locality
					No. of the Male host	No. of the Female host		
Jun.2013	5652 to 6129	477	254	223	8	4	1min-5max	Turori
Jun.2013	6130 to 6878	748	359	389	----	---	----	Koregaon
Jun.2013	6879 to 7160	281	261	305	----	----	----	Korewadi
Jul.2013	7161 to 7490	329=566	----	----	----	----	----	Korewadi
Jul.2013	7491 to 7956	465	239	226	1	----	4mf.	Guggalgaon
Aug.2013	7957 to 8705	714	349	350	3	1	2min-4max mf.	Chichkot
Aug.2013	8706 to 8804	98	45	43	----	----	----	Trikoli
Sep.2013	8805 to 9650	845	442	403	1	----	9mf.	Trikoli
Oct.2013	9651 to 10810	1159	565	598	----	----	----	Trikoli
Oct.2013	10811 to 10922	219	112	107	----	----	----	Kunhali
Nov.2013	10923 to 110228	285	174	111	----	----	----	Dhudhanal
Dec.2013	110289 to 11316	206	101	105	----	----	----	Dhudhanal
Jan.2014		286	186	100	1	----	4 mf.	Karali
Mar.2014	2021 to 2193	172	72	100	3	1	4 mf.	Hundal
Mar.2014	2194 to 2914	720	355	365	---	----	----	Jangdalwadi
Mar.2014	2915 to 3113	198						TalmodTanda
Apr.2014	3114 to 3250	136	191	143	1	---	3mf.	TalmodTanda
Apr.2014	3251 to 4337	1086	564	549	10	5	1min-9max	Talmod
May.2014	4338 to 4408	70	32	38	2	--	1	Talmod
May.2014	4409 to 5652	1243	643	600	4	3	1min-5max	Talmod
Jun.2014	5653 to 7220	1568	765	803	----	---	----	Talmod
Jul.2014	7221 to 7931	710	350	360	----	----	----	Hipparga
Jul.2014	7932 to 8252	320	164	165	----	----	----	Hipparga
Sep.2014	8253 to 8776	523	296	227	3	---	2min-6max	Chichkot
Oct.2014	8778 to 9828	1050	564	486	---	---	----	Chichkot
Jan.2015	1073 to 1184	160	88	72	15	11	1min-8max	Diggi
Feb.2015	1185 to 1350	165	96	69	19	7	1min-9max	Diggi
Mar.2015					6	3		Bedga

During Seasonal to seasonal variation and microfilaria rate was 7.5%, 7.6% in the year 2013 and 2014. Overall microfilaria rates were higher in males (8.7%) as compared to females (6.4%) (The number of parasitemic cases, divided by the total number of blood smears made.)

CONCLUSION

The microfilaria infection was observed greater in males as compared to the females. After the analysis of data the present study can be concluded that the high infection of microfilaria parasites (incidence, intensity, density and index of infection) was occurred in summer season followed by winter where as low in monsoon season. This type of results indicated that environmental factors were influencing the seasonality of parasitic infection either directly or indirectly.

The influence of environmental factors and climatic factors as they affect the dynamics of population growth of the bancroftian filariasis vector in the Umerga taluka of Osmanabad district, Maharashtra state, India.

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