

Seroprevalence of lymphatic filariasis among migrant workers in Sabah, Malaysia



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Summary

Malaysia is endemic for brugian filariasis and aims to eliminate lymphatic filariasis (LF) as a public health problem by the year 2025. The World Health Organization (WHO) recommended target antibody of <2% to halt transmission of LF in areas where *Brugia* spp. is endemic. The antibody prevalence of LF among the migrants in the sub-district Tangkarason was 1.9% (95% CI 0.8 to 3.9) and locality with the highest number of positive tests was Meridien Tangkarason Estate.

Introduction

This cross-sectional study was conducted to determine the seroprevalence of LF among migrant workers in Sabah and to identify the sociodemographic factors associated with positive LF antibody.

Table 1: Seroprevalence according to locality and zone

Zone	Locality	Total number tested	Number of positive test	Prevalence, % (95% CI)	Prevalence by zone, % (95% CI)
1	Jayasama Estate	7	1	14.3 (0.4 to 57.9)	3.7 (0.5 to 12.7)
	Max Century Oil Palm	9	0	0	
	Khoon Siah Maidan Estate	36	1	2.8 (0.1 to 14.5)	
	Inai Lambang Estate	2	0	0	
2	Low Seow Wing Golong Estate	27	0	0	0
	Tobe Property Estate	30	0	0	
	Khoon Siah Pinangkau Estate	5	0	0	
3	Grezzing Estate	4	0	0	1.9 (0.5 to 4.9)
	Low Seow Wing Tangkarason Estate	8	0	0	
	Meridien Tangkarason Estate	195	4	2.1 (0.6 to 5.2)	
4	Great Surplus Estate	10	0	0	2.3 (0.1 to 12.0)
	Meridien Tanjung Nipis Estate	34	1	2.9 (0.1 to 15.3)	
Total		367	7	Overall prevalence	1.9% 95% CI (0.8 to 3.9)

Discussion

In Sabah, the two predominant migrants are the Filipinos (15%) and the Indonesians (85%). Both the Philippines and Indonesia are endemic for *Wuchereria bancrofti* and *Brugia malayi*. Malaysia harbors the vectors for the parasite. Being the host of the highest number of non-Malaysian citizens in comparison to other states in Malaysia, Sabah is at risk for bancroftian filariasis infection. Hence, the migrant workers should be monitored for this infection.

Materials and Methods

Eligible migrant workers ≥ 20 years of age in twelve estates in vicinity of endemic villages in Beluran, Sabah, were interviewed using a standardized questionnaire and tested for filarial antibodies using *Brugia* rapid test kits. The study was conducted in July 2021 involving 278 houses with approximately 1106 population. Every second person who was registered and consented for the study was enrolled. The continuous variables were further analysed using independent t-test. The sociodemographic factors for LF infection were compared between subjects positive for and subjects negative for brugian filarial antibody using Pearson's chi-squared test or Fisher's exact test. All analyses were conducted using SPSS Statistics version 22.0 (IBM, Armonk, NY, USA). The level of significance was set to a p-value <0.05.

Results

A total of 367 subjects were included in the study. The antibody prevalence of brugian filariasis in the study population was 1.9% (95% CI 0.8 to 3.9). The zone with the highest antibody prevalence was zone 1 (3.7%, 95% CI 0.5 to 12.7) and locality with highest number of positive tests was Meridien Tangkarason Estate. All positive cases were men (2.8%, $p=0.101$). Their mean age was 40.9 years (SD11.0, $p=0.196$). They have lived in Sabah for approximately 13 years (mean: 156.0 ± 27.7 months, $p=0.949$) and have worked almost 8 years in the estates (mean: 97.7 ± 75.5 months, $p=0.302$). They planned to work in Sabah for another 5 more years (mean: 68.6 ± 43.1 months, $p=0.661$). The prevalence of brugian filarial infection was higher among the Filipinos than in the Indonesians/East Timorese (3.1% vs 1.5%; $p=0.387$).

Table 2: Comparison of characteristics of respondents with positive and negative *Brugia* Rapid test results

Variable	Total (N=367)	Brugia Rapid Result		p-value ^a
		Negative, n (%)	Positive, n (%)	
Age (years), mean \pm SD		35.8 \pm 10.1	40.9 \pm 11.0	0.196
Gender				
Male	248	241 (97.2)	7 (2.8)	0.101 ^b
Female	119	119 (100.0)	0 (0.0)	
Country of Origin				
Indonesia/East Timor	270	266 (98.5)	4 (1.5)	0.387 ^b
Philippines	97	94 (96.9)	3 (3.1)	
Duration of stay in estate (months), mean \pm SD		69.4 \pm 71.7	97.7 \pm 75.7	0.302
Duration of stay in Sabah (months), mean \pm SD		159.0 \pm 121.6	156.0 \pm 27.7	0.949
Remaining period to stay in Sabah (months), mean \pm SD		103.5 \pm 210.7	68.6 \pm 43.1	0.661

^aIndependent t-test ^bChi-squared test

Conclusion

A low antibody prevalence of brugian filariasis was confirmed in the study sites, which achieved the target of <2%. The sociodemographic factors were not associated with positive LF antibody. Other factors that prevent transmission of LF among the migrant workers living in vicinity of endemic villages need to be determined to further strengthen the current filariasis elimination program.

References

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