

ORIGINAL ARTICLE

Description of Ascariasis in Children Aged 2 to 12 Years at the Martha Friska Hospital, Pulo Brayan, Medan

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Abstract: Province of North Sumatera is one of the provinces with the most Ascariasis cases which affects children. This study aims to determine the description of ascariasis patients aged 2-12 years who are treated at the Martha Friska Pulo Brayan Hospital, Medan. This study is a descriptive study with a method *cross-sectional*, using consecutive sampling, which was conducted on patients who met the inclusion criteria from January to October 2017. The results of the study showed that most of the ascariasis subjects were male, pre-school age with good nutritional status, had normal Hb and Eosinophil levels.

Keywords: Ascariasis, pre-school age, nutritional status

INTRODUCTION

Contributors to the number of ascariasis in the world are tropical countries, especially Asia and Africa. In Southeast Asia, the incidence of ascariasis reaches 97 million people and Indonesia includes 60-69% of children aged 2-12 years, where North Sumatra is one of the provinces with the highest number of sufferers where 50-80% is suffered by school-age children.^{1,2,3}

This study aims to determine the description of ascariasis patients aged 2-12 years who were treated at the Martha Friska Hospital Medan.

METHODS

This descriptive study used a cross-sectional method, with consecutive sampling, located at the Martha Friska Hospital, Pulo Brayan Village, East Medan

District from January to October 2017. Ascariasis diagnostic enforcement used the Kato method, and the research subjects were children aged 2-12 years who identified *Ascaris lumbricoides* worms and eggs in their feces, and this study has received ethical permission from the Health Research Ethics Commission (KEPK) Faculty of Medicine, University of North Sumatra.

RESULTS

From the research results obtained 63 research subjects, wherein table 1 can be seen in the distribution of subjects based on gender.

Table 2 involves the distribution of subjects based on the age of the patient. In table 3 we can see the distribution of subjects based on nutritional status.

Table 4 shows the distribution of the subjects based on the patient's hemoglobin level, while in table 5 we can see the

distribution of patients based on eosinophil levels.

Table 1. Distribution of Subjects by Gender

Gender characteristics	The results of stool examination using the Kato method		Total	p-value
	Single infection <i>A. lumbricoides</i>	Mix infection and eggs <i>A. lumbricoides</i> (-)		
	n (%)	n (%)	n (%)	
Male	7 (11,1)	26 (41,3)	33 (52,4)	0,6463
Female	5 (7,9)	25 (39,7)	30 (47,6)	
Total	12 (19,0)	51 (81,0)	63 (100,0)	

Table 2. Distribution of Subjects by Age

Characteristics	The results of stool examination using the Kato method		Total	p-value
	Single infection <i>A. lumbricoides</i>	Mix infection and eggs <i>A. lumbricoides</i> (-)		
	n (%)	n (%)	n (%)	
Age				0,6848
Preschool age	8 (12,7)	37 (58,7)	45 (71,4)	
School age	4 (6,3)	14 (22,3)	18 (28,6)	
Total	12 (19,0)	51 (81,0)	63 (100,0)	

Table 3. Distribution of Subjects Based on Nutritional Status.

Characteristics	The results of stool examination using the Kato method		Total	p-value
	Single infection <i>A. lumbricoides</i>	Mix infection and eggs <i>A. lumbricoides</i> (-)		
	n (%)	n (%)	n (%)	
Nutritional status				0,6651
Poor nutritional status	3 (4,8)	16 (25,4)	19 (30,2)	
Good nutritional status	9 (14,2)	35 (55,6)	44 (69,8)	
Total	12 (19,0)	51 (81,0)	63 (100,0)	

Table 4. Distribution of Subjects Based on Hemoglobin Levels

Characteristics	The results of stool examination using the Kato method		Total	p-value
	Single infection <i>A. lumbricoides</i>	Mix infection and eggs <i>A. lumbricoides</i> (-)		
	n (%)	n (%)	n (%)	
Hemoglobin levels				
Normal	6 (9,5)	35 (55,6)	41 (65,1)	0,2232
Anemia	6 (9,5)	16 (25,4)	22 (34,9)	
Total	12 (19,0)	51 (81,0)	63 (100,0)	

Table 5. Distribution of Subjects Based on Eosinophils Levels

Characteristics	The results of stool examination using the Kato method		Total	p-value
	Single infection <i>A. lumbricoides</i>	Mix infection and eggs <i>A. lumbricoides</i> (-)		
	n (%)	n (%)	n (%)	
Eosinophil levels				
Normal	9 (14,3)	49 (77,8)	58 (92,1)	0,0150
Eosinophilia	3 (4,7)	2 (3,2)	5 (7,9)	
Total	12 (19,0)	51 (81,0)	63 (100,0)	

DISCUSSION

The number of research subjects found was 63 people, this is most likely due to being a hospital that facilitates the Social Security Administering Body (BPJS-Kesehatan) health program, Martha Friska Brayan Hospital can only serve referral patients who carry cover letters. This tiered referral system reduces the number of patient visits from areas with a high number of *A. lumbricoides* worm infections in North Sumatra to seek treatment at Martha Friska Brayan Hospital, the number of these subjects looks small when compared to a study conducted by Samosir in 2012 in Medan Municipality, the number of *A. lumbricoides* worms was 30.7% of all worms.⁴ The results of a UNICEF survey in 2003 showed that *A. lumbricoides* in North

Sumatra reached 50% to 79.9% of all worm infections.^{3,4} Another study that took research samples from other areas in North Sumatra showed that the number of *A. lumbricoides* worms was almost the same. This can be seen from the results of Daulay's research in 2008 in Sibolga Regency which showed that the number of *A. lumbricoides* worms was 54.2% of all cases of worms.⁵ Simarmata's research in 2010 in Kaban Jahe District, Karo Regency was 41.3%, and Juwita's research in 2013 in Serdang Bedagai Regency was 69.8%.^{5,6,7}

The number of patients with a single infection with *A. lumbricoides* who were male was greater than the number of patients with female, namely 33 male patients (23.3%) and 30 female patients (16.7%). This difference is not significant. This is due

to differences in lifestyles, behaviors, and habits of the gender differences between men and women which are not different in this age group so that the male and female groups have the same chance of being infected by *A. lumbricoides* worms.

Another study in North Sumatra did not separate *A. lumbricoides* worm infection with other soil-borne worm infections, as seen in the results of Simarmata's 2012 study.⁶ This study also showed that the number of people with worms transmitted through the soil who were male was 46.2% and less than that of women was 53.7%. However, there was no association between gender with *A. lumbricoides* worm infection in this study. Likewise with the results of Samosir's research in 2013 (37.3% vs 46.3%).^{4,6}

Juwita's research showed that there were more male sufferers than female patients (80.5% vs 76.4%), but there was no association found between gender characteristics with *A. lumbricoides* worm infection in this study.⁷

The results of the research at Martha Friska Pulo Brayan Hospital showed that most ascariasis sufferers suffered at pre-school age, namely 71.4%, this can be related to the level of child development, where at pre-school age children are still at the intellectual maturation stage growth. Children have not been able to distinguish between right and wrong things for health, so they have a higher tendency to suffer from worms compared to school age.² The findings in this study are also in line with a survey conducted by UNICEF in Indonesia showing that *A. lumbricoides* worms are higher in the pre-school age group (63.7% at pre-school age and 53.0% at school age).³

The results of research at Martha Friska Pulo Brayan Hospital showed that 30.2% of patients with *A. lumbricoides*

infection suffered from malnutrition. Nutritional disturbances in ascariasis are caused by impaired absorption of food by worms so that the body's cells do not receive optimal amounts of nutrition, but this condition usually occurs in chronic ascariasis.⁷ The findings of nutritional disorders status in this study were not that big when compared to the number of patients with decreased nutritional status in Juwita's study, which amounted to 45.0%, and in Simarmata's study, which amounted to 64.7% of the total cases of *A. lumbricoides* worm infection in the area they were living in thorough.^{6,7}

In this study, 34.9% of ascariasis subjects suffered from anemia, this is due to impaired function of food absorption due to infection in the body so that nutrients cannot be absorbed properly by the body, besides migration of worm eggs outside the digestive tract such as in the lungs. lungs that cause coughing symptoms in children, this can reduce appetite, plus the presence of gastrointestinal symptoms such as nausea and vomiting.^{8,9}

In this study, an increase in the number of eosinophils occurred in 7.9% of all ascariasis patients. Eosinophilia can be a marker of parasitic infection in the body, including ascariasis, but in a short time infection sometimes does not increase eosinophil levels in the body.^{10,11,12}

CONCLUSION

Ascariasis at General Hospital Martha Friska Pulo Brayan Medan from January to October 2017, aged 2-12 years, totaling 63 people, most of whom are male, pre-school age with good nutritional status, have normal Hb and Eosinophil levels.

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