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Differences in the Satisfaction Levels of Hemangioma Patients Receiving Propranolol Therapy with Excision Therapy based on Scar Results at Dr. Mohammad Hoesin General Hospital, Palembang, Indonesia

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A B S T R A C T

Introduction: Hemangiomas that have undergone involution, also have a risk for the formation of residual scar tissue or scar, as well as hemangiomas undergoing excision therapy. Scar, especially those that occur in areas that are visible or open, certainly has implications for the patient's quality of life. This study aimed to determine the level of satisfaction of hemangioma patients who received propranolol therapy with excision therapy based on the scar results at Dr. Mohammad Hoesin General Hospital, Palembang, Indonesia. **Methods:** Cross-sectional analytic observational study. A total of 95 research subjects participated in this study. The level of satisfaction is based on the severity of the lesion scar. The family assessment was assessed using a Likert scale consisting of the following assessment items itching, pain, color, thickness, and shape. Data analysis was carried out with the help of SPSS version 25 in univariate and bivariate. **Results:** Research subjects who received propranolol therapy had different levels of satisfaction from research subjects who received surgical therapy. Research subjects who received propranolol therapy had a higher satisfaction level of 1.71 higher than those who received surgical therapy. **Conclusion:** There are differences in the level of satisfaction of hemangioma patients who received propranolol therapy with excision therapy based on the scar results at Dr. Mohammad Hoesin General Hospital, Palembang, Indonesia.

1. Introduction

Vascular anomaly is a broad spectrum of diseases starting from just a birthmark to being life-threatening. Vascular anomalies consist of two parts, namely vascular tumors and vascular malformations. One form of vascular tumor is hemangioma which is a type of tumor that is commonly found in infancy and childhood. Hemangiomas can appear and grow in all parts of the body. Usually, hemangiomas appear at birth or 1 to 4 weeks after birth and then experience rapid development in the first 6 to 12 months after birth. Hemangiomas generally experience involution by themselves through a process of progressive cell death. Generally, hemangioma does not infiltrate into the surrounding tissue. However, sometimes hemangioma can be destructive. Although hemangiomas are usually benign and self-limited, sometimes hemangiomas can also cause pain, ulceration, and bleeding during the proliferation, scarring or disability, and functional disorders that it can interfere with the patient's quality of life.[1-5]

Hemangiomas that have undergone involution also have a risk for the formation of residual scar tissue or scar, as well as hemangiomas undergoing excision

therapy. Scar, especially those that occur in areas that are visible or open, certainly has implications for the patient's quality of life. Therefore, it is important for clinicians to be able to assess and prevent the formation of scars in hemangioma patients based on the choice of therapeutic management. Until now, there has been no study that examines the comparison between non-operative management (propranolol) and operative management (excision) based on the level of patient satisfaction in terms of results. Scar in hemangioma lesions.[6-10] This study aimed to determine the level of satisfaction of hemangioma patients who received propranolol therapy with excision therapy based on the scar results at Dr. Mohammad Hoesin General Hospital, Palembang, Indonesia.

2. Methods

This study was an analytic observational study with a cross-sectional approach and used primary data from telephone interviews with research subjects and secondary data from medical records at the medical records installation of Dr. Mohammad Hoesin General Hospital, Palembang, Indonesia. A total of 95 research subjects participated in this study, where research subjects met the inclusion criteria in the form of all patients diagnosed with hemangioma by the doctor in charge of the patient, hemangioma patients undergoing systemic propranolol therapy or patients undergoing surgical excision therapy 6 months post-therapy, family/guardians willing to take part in the study, medical record data is complete, and there is a contact number that can be contacted. This study has received approval from the Medical and Health Research Ethics Committee, Faculty of Medicine, Universitas Sriwijaya (No. LB.02.03/XVII.5.11/ETIK) and Research Permit (No. LB.02.03/XVII.2.2/060).

The level of satisfaction is based on the severity of the lesion scar. The family assessment was assessed using a Likert scale consisting of the following assessment items itching, pain, color, thickness, and shape. This study presents sociodemographic data of research subjects and clinical data related to hemangioma in research subjects. Data analysis was performed using SPSS software version 25. Univariate analysis was performed to present the frequency distribution of study data. Bivariate analysis was carried out to determine differences in the quality of the satisfaction level of research subjects related to hemangioma management with the chi-square test, where the value of $p < 0.05$.

3. Results

Table 1 presents the baseline characteristics of the research subjects. In the group that received propranolol therapy, the majority of subjects were female, whereas in the group that received surgical treatment, the majority of subjects were male. The majority of research subjects, both from the propranolol therapy and surgery groups, were aged 0-5 years. The majority of subjects who received propranolol therapy had hemangioma locations on the face, whereas those in the group who received surgery had hemangioma locations on the torso.

4. Discussion

Management of hemangioma therapy in this study was carried out by 2 methods, namely by consuming propranolol and by surgical excision. In this study, more subjects were treated with propranolol (50.5%) than those with surgery (49.5%). The results of this study are in line with other studies, which state that clinicians are advised to use oral propranolol therapy as therapy first-line in the proliferative phase of hemangioma requiring systemic therapy. This is due to the large number of hemangioma lesions found on the head and neck, facial region, and hemangiomas, which are accompanied by complications which may be one of the causal factors, why many operative measures are performed on patients, considering that one of the indications for operative management is hemangiomas found in sensitive locations and hemangiomas accompanied by complications.[11-15]

Table 1. Baseline characteristics of research subjects.

	Propranolol therapy		Surgical therapy	
	Frequency	Percentage	Frequency	Percentage
Gender				
Male	21	22.1	24	25.3
Female	27	28.4	23	24.2
Age				
0-<5 years	45	47,4	35	36.8
5-<10 years	3	3.2	3	3.2
10-<14 years	0	0.0	4	4.2
14-<18 years	0	0.0	5	5.3
Location				
Head neck	11	11.6	13	13.7
Face	17	17.9	6	6.3
Torso	8	8.4	15	15.8
Limb	11	11.6	11	11.6
Perineum	1	1.1	2	2.1

Table 2 presents the relationship between satisfaction levels with propranolol therapy and surgery. Research subjects who received propranolol therapy had different levels of satisfaction from research subjects who received surgical therapy. Research subjects who received propranolol therapy had a higher satisfaction level of 1.71 higher than those who received surgical therapy.

Table 2. Relationship between satisfaction levels with propranolol therapy and surgery.

Therapy group	**Propranolol (n=48)**		**Surgery (n=47)**		**Total**	**P***	**PR (95% CI)**
outcomes	**N**	**%**	**N**	**%**			
Satisfied	24	25.3	11	11.6	35	0.013	1.714 (1.169-2.513)
Unsatisfied	24	25.3	36	37.9	60		

*Chi-Square test, p<0,05.

Another study stated that 94% of infantile hemangioma and 63% of other types of hemangioma responded partially or completely by comparing the lesions before and after therapy and concluding that propranolol is an effective treatment for treating hemangiomas in children of all ages and not only at the proliferative stage. Another study found interesting results in some patients with extensive infantile hemangioma treated with propranolol (for obstructive hypertrophic cardiomyopathy and high cardiac output). In each case, the hemangioma resolved after the initiation of propranolol. The study also described similar findings in 9 other children with very large hemangiomas who were treated with propranolol. In a follow-up report, 32 children with complicated hemangioma treated with propranolol experienced direct discoloration and an effect on hemangioma growth. The mechanism of action of propranolol is still not completely clear, but there are hypothesized mechanisms, such as induction of vasoconstriction and inhibition of angiogenesis by reducing VEGF and bFGF levels, induces apoptosis of endothelial cells, inhibits the production of nitric oxide, and suppression of the renin-angiotensin system.[16-19]

5. Conclusion

There are differences in the level of satisfaction of hemangioma patients who received propranolol therapy with excision therapy based on the scar results at Dr. Mohammad Hoesin General Hospital, Palembang, Indonesia.

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