

The Relation of Comorbidities with Psoriasis Patients Treated in ERMATOVENERELOGY Outpatient Clinic of Dr. Moewardi General Hospital Surakarta January 2013-December 2017

Tutik Rahayu, Eka Putra Wirawan, Marsita Endy Dhamayanti, Rina Diana, Danu Yulianto, Arie Kusumawardhani
Dermatovenerology Departement Dr.Moewardi General Hospital/Faculty of Medicine Sebelas Maret University, Surakarta, Indonesia

Keywords: comorbidities, relation, psoriasis.

Abstract: Psoriasis is a chronic inflammatory disease with typically lesions and especially concerning on the body that are often affected trauma. The onset of psoriasis is primarily 15-35 years of age, the prevalence varies with age, geography and environment. Immunopathogenic psoriasis involves Th1 and Th 17 cells that can cause the formation of inflammatory mediators that can trigger other comorbidities physically, psychologically and socially. This Cross sectional study assessed the relation of comorbidities with psoriasis in dermatovenerology outpatient clinic of Dr. Moewardi Hospital Surakarta between January 2013-December 2017. Psoriasis patients visited dermatovenerology outpatient clinic during January 2013-December 2017 were included in our study. There were 97 psoriasis patients, of these 51 were males and 46 females. All study subjects were under 80 years old. The data were analyzed statistically by using SPSS and Chi-Square test with $P < 0.05$ was considered significant. Various comorbidities were found including hypertension (28.6%), diabetic mellitus (20.4%), hyperuricemia (4.1%), dyslipidemia (16.3%), nerve disease (6.1%), dermatophyte (12.2%), kidney disease (14.3%), malignancy (6.1%), gastropathy (24.5%), obesity (4.1%), heart disease (26.5%), lung disease (22.4%), arthritis psoriasis (10.2%), depression (12.2%), systemic lupus erythematosus/SLE (4.1%) and vitiligo (2%). Chi-Square test showed that age and occupation are significantly related with all comorbidities with $P = 0.011$ and $P = 0.000$ respectively. Our study revealed that age and occupation are related to comorbidities occurred in psoriasis patients. The older the age and the lower the income the greater the comorbidity affect psoriasis patients

1 INTRODUCTION

Psoriasis is a chronic inflammatory skin disease associated with genetic. It is characterized by complex changes in the epidermal growth, differentiation, multiple biochemistry, immunology and vascular abnormalities with an unknown association of nervous system function. This chronic disease is triggered by environment, trauma, infection and medication, typical clinical features of psoriasis is well defined erythematous plaque with thick squama coated in white silvery layer, occurring on elbow, knees, scalps, trunk and umbilicus which often get trauma injury (Johan, 2012). Psoriasis has various forms of clinical manifestations and the most common variant is psoriasis vulgaris (Johan, 2012; Factor, 2017).

The prevalence of psoriasis affected by several factors such as age, geography and environment, affecting for about 2%-3% of the overall population with onset of patients ranging between the ages of 15-35 years (Johan, 2012), (WHO, 2016). The incidence of psoriasis in Asia is 0.4% and more common in male patients and study by Eka et al in RSUD.Dr.Moewardi Solo reported that the prevalence rate is about 4.5% with male patients were more dominant than females and age dominant in the second and third decades (Johan, 2012; Putra, 2016).

The severity of this disease is assessed by calculating psoriasis area and severity index (PASI) and classified into 3 parts: mild, moderate and severe (Bozek, 2017). The severity of PASI scores is often associated with increased comorbidity in patients with moderate to severe (WHO, 2016).

Psoriasis is a chronic disease that can cause various comorbidities physically, psychologically and socially (WHO, 2016). Immunopathogenesis of psoriasis involves Th1, Th17 and proinflammatory lymphocytes such as tumor necrosis factor-alpha (TNF- α), interferon- γ and interleukin-2 predisposing factors to comorbidities such as arteriosclerosis, skin disorders and metabolism, psoriasis arthritis, malignancies and other autoimmune diseases (factor, 2017), (Mazlin, 2012), (Tsai, 2011). Pradyumma et al study on psoriasis patients in Europe in 2013 found that psoriasis had some comorbidities such as hypertension, diabetes militus, obesity, dyslipidemia, heart disease, metabolic syndrome, cardiovascular disease, psoriasis arthritis, crohn's disease, lung disease, mental disorders and malignancies (Bhandary, 2016). Soorya et al also studied in patients with psoriasis in India in 2017 and found some skin comorbidities in these patients (Factor, 2017). Thus we investigated the relation of comorbidities with psoriasis in patients who visited dermatovenerology outpatient clinic of Dr. Moewardi General Hospital Surakarta in period of January 2013-December 2017.

2 METHODS AND RESULTS

This Cross sectional study was performed in psoriasis patients visited of dermatovenerology outpatient clinic of Dr. Moewardi Hospital Surakarta during January 2013-December 2017. The data were taken from medical record data of patients. The data were then analyzed with SPSS and Chi-Square test, with the significant value of $P < 0.05$.

The study sample of these subject the age ranged from 0-17 years, 18-65 years, 66-79 years were 4.1%, 83.5% and 12.4% respectively. Males were more dominant than females (52.6% vs 47.4%). The study subjects were comprised of part time (31.9%). All psoriasis patients in our study had been suffering from this disease for more than 3 months. Psoriasis area and severity index score revealed mild (26.8%), medium (52.6%) and severe (20.6%). The most common comorbidity was hypertension (28.6%), followed by heart disease (24.5%), gastropathy (24.5%) and lung disease (22.5%).(Table 1).

Table 1. Comorbidities of psoriasis patients

Variable	Comorbidities		p-value	
	(+)	(-)		
Age	0-17 y.o	0	4	0.011*
	18-65 y.o	41	40	
	66-79 y.o	10	2	
Occupation	High school graduate	1	5	0.000*
	Student	0	3	
	College	1	2	
	Employees	5	7	
	Farmer	1	12	
	Entrepreneur	0	8	
	House wife	11	6	
	Retired	3	1	
	Part time	29	2	

Chi-Square test showed that age and occupation are significantly relation with all comorbidities with value of $P=0.011$ and $P=0.011$.

3 DISCUSSION

Psoriasis is a skin disease of the erythrosquamous dermatoses, characterized by autoimmune and chronic residif with typical are macula erythema, covered by thick, layered squama and clear white as mica, accompanied by droplets of wax phenomenon and an Auspitz sign. Psoriasis can occur at any age but rarely in the age of under 10 years old, usually appears at the age of 15-35 years (Johan, 2012), (WHO, 2016). In our study it appeared at the age of 18-65 years old. It is consistent with previous study by Alexander et all, in which the dominant age in psoriasis is in the second and third decades (Egeberg, 2017). This probably due to the onset of this disease is at the age of 15-35 years old and the disease tends to be residual and lasts for a lifetime (WHO, 2016).

Table 2. Comorbidities and their relation to psoriasis

Variable	Amount	Percentage	
Comorbidities	Hypertension	14	28.6%
	Diabetic militus	9	18.4%
	Hyperuricemia	2	4.1%
	Dyslipidemia	8	16.3%
	Nerve disease	3	6.1%
	Dermatophyte	6	12.2%
	Kidney disease	7	14.3%
	Malignancy	3	6.1%
	Gastropathy	12	24.5%
	Obesity	2	4.1%
	Heart disease	12	24.5%
	Lung disease	11	22.4%
	Arthritis psoriasis	4	8.2%
	Depression	6	12.2%
	Pemphigus foliaceus	1	2%
	SLE	1	2%
Vitiligo	1	2%	

According to the National Health Council the definition of chronic disease is a disease lasts more than 3 months (National Health Council, 2014). This study found that all respondents (100%) suffered for

more than 3 months. This is because psoriasis is a long-term chronic disease (WHO, 2016).

Psoriasis may occur in both men and women, but more likely in men (WHO, 2016). This study found that the number of male respondents were more dominant. Similar results were also reported by Tsen-Fang Tsai et al. that psoriasis sufferers were more common in men than women (Ogdie, 2013). These conditions are not due to phenotypic differences but because men were more frequently exposed to precipitating factors due to their physical activity (Johan, 2012; WHO, 2016; Griffiths, 2010).

The most common clinical variant of psoriasis is the type of vulgaris psoriasis, which affects about 58%-97% of all patients with psoriasis (WHO, 2016). The number of vulgaris psoriasis patients in this study was 74.2% and it is the most common type of psoriasis compared with other psoriasis types as another previous study by Kurniasari et al. reported that the most dominant type of psoriasis is psoriasis vulgaris (Boham, 2016). However, to date there has not been any study which definitively report the reason for this type to be the most dominant. psoriasis vulgaris (Boham, 2016). However, to date there has not been any study which definitively report the reason for this type to be the most dominant. Most of psoriasis patients in our study are part timers with low income. This finding is similar to that of study by Carlson et al. Perhaps this is due to the patients perception that psoriasis gives negative impact on their life causing problems with work, daily activities and socialization (Carlson, 2016).

In this study obtained PASI score of mild 26.8%, moderate 52.6% and severe 20.6%. The severity of the PASI score is associated with increased comorbidity in patients, where comorbidity is obtained primarily in patients with moderate to severe (WHO, 2016). In this study, the majority of patients had a moderate PASI score of 52.2% and the number of psoriasis patients who had comorbidities 51.5%. Research with similar results was previously reported by Pradyumna et al (Bhandary, 2016). The condition is presumed because the majority of respondents in this study worked part timers/low income so the ability of patients to seek medical attention also decreased and caused less controlled the disease (Carlson, 2016).

Psoriasis is a chronic disease that affects the nails, skin and can cause various comorbidities physically, psychologically and socially (WHO, 2016). This study reported that 50.5% of these patients had comorbidities of disease including hypertension (28.6%), diabetic militus (20.4%), hyperuricemia (4.1%), dyslipidemia (16.3%), nerve disease (6.1%),

dermatophyte (12.2%), kidney disease (14.3%), malignancy (6.1%), gastropathy (24.5%), obesity (4.1%), heart disease (26.5%), lung disease (22.4%), arthritis psoriasis (10.2%), depression (12.2%), SLE (4.1%) and vitiligo (2%). This is similar with previous study by Bergamo et all and Howa yeung et all (Factor, 2017), (Rota, 2010). The comorbidities in psoriasis are due to psoriasis is an immune disease involving Th1, Th17 and proinflammatory lymphocytes suspected to be predisposing factors for various comorbidities including arteriosclerosis, skin disorders and metabolism as well as trigger the emergence of symptoms of other autoimmune diseases (Factor, 2017; Mazlin, 2016; Tsai, 2011). In this chronic disease where the increase of T cell activation, both Th1 and Th17 cells to produce proinflammatory cytokines. These inflammatory cells can affect the function of cells, other tissues and trigger the comorbidities (Factor, 2017; Mazlin, 2016; Tsai, 2011).

Our study revealed that age and occupation are related to comorbidities occurred in psoriasis patients. The older the age the greater the momorbidity affect psoriasis patients. This is similar to previous study by Pradyumna et all. who reported that the older the age the greater the momorbidity affect psoriasis patients (Bhandary, 2016). While the relation between occupation status and comorbidities is also similar with study by Carlson et al. It is due to the patients perception that psoriasis gives negative impact on their life causing problems with work, daily activities socialization and that economic level the majority in low treatment (Carlson, 2016).

4 CONCLUSION

There is a relation between comorbidity with psoriasis particularly age and occupation. The older the psoriasis sufferer the greater the comorbidities, and the lower the income, the greater the comorbidities too. Thus routine screening is required in patients with psoriasis and need cooperation with other clinical divisions is necessary to prevent and manage accompany it.

REFERENCES

- Bhandary, P. R., Sanath, P. K., Shetty, N. J., Girish, P. N., & Lathika, K. Clinico-epidemiological study of Psoriasis and associated co-morbidities. *IAIM*, 3(3), pp. 116-122.

- Boham, M.P., & Suling, P., 2016. Profil Psoriasis di Poliklinik Kulit dan Kelamin RSUP Prof. Dr. R. D. Kandou Manado 2013-2015. *Jurnal e-clinic*, (4), pp. 1-6.
- Bożek, A. A., & Reich, A. A., 2017. The reliability of three psoriasis assessment tools: Psoriasis area and severity index, body surface area and physician global assessment. *Advances in clinical and experimental medicine: official organ Wroclaw Medical University*, 26(5), pp. 851-856.
- Carlson, A., 2016. Interventions to improve quality of life for patients with psoriasis and psoriatic arthritis. *Drug topics*, 1, pp. 51-63.
- Egeberg, A., Skov, L., Gislason, G. H., Thyssen, J. P., & Mallbris, L., 2017. Incidence and prevalence of psoriasis in denmark. *Acta dermatovenerologica*, 97(6-7), pp. 808-812.
- Factor, S.I., Baskaran, S., Thomas, J., Sneha, K., 2017. A study on dermatological comorbidities in psoriasis. *World Journal Pharmacology Research*, 3(9), pp. 157-159.
- Griffits, C., Barker, J., 2010. Psoriasis. Dalam: Rook's Textbook of Dermatology. edisi ke 8. Inggris: Wiley-Blackwell, p. 1-60
- Johan, E. Gudjonsson., & James, T. Elder., 2012. Psoriasis. Dalam: Goldsmith LA, Katz SI, Gilchrist BA, dkk. editors. Fitzpatrick's Dermatology in General Medicine. Edisi ke-8. New York: McGraw Hill, pp. 197-222.
- Mazlin, M. B., Chang, C. C., & Baba, R., 2012. Comorbidities associated with psoriasis-data from the malaysian psoriasis registry. *The Medical journal of Malaysia*, 67(5), pp. 518-521.
- National Health Council., 2014. About chronic disease. h.10-1. Tersedia pada :
www.nationalhealthcouncil.org.
- Ogdie, A., Margolis, D.J., Shin, D.B., Attor, R., Troxel, A.B., Gelfand, J.M., 2013. Psoriasis Severity and the Prevalence of Major Medical Comorbidity A Population-Based Study. *Journal of American Medicine Association*, 19104(10), pp. 1173-1179.
- Putra, E. W., & Dharmawan, N., 2017. Profile of psoriasis patients in patients who visited dermatovenerology outpatient clinic of Dr. Moewardi General Hospital Surakarta Januari 2012-desember 2016, pp. 1-8. unpublised.
- Rota, O.M., Riuniti, O., Raffaele, S.S., 2010. Epidemiology of comorbidities. *Dermatology Therapy*, 23, pp. 114-118.
- Tsai, T. F., Wang, T. S., Hung, S. T., Phiona, I., Tsai, C., Schenkel, B., ... & Tang, C. H., 2011. Epidemiology and comorbidities of psoriasis patients in a national database in Taiwan. *Journal of dermatological science*, 63(1), pp. 40-46.
- World Health Organization., 2016. *Global Report on Psoriasis*. h.1-8.