20 PSORIASIS PATIENTS WITH DIABETES IN MALAYSIA

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INTRODUCTION

Diabetes is a known co-morbidity in patients with psoriasis and the risk is higher in patients with severe psoriasis.

OBJECTIVE

Our objective is to determine the co-morbidities & risk factors in adult patients with psoriasis and diabetes (aged >18 years) in Malaysia.

METHODOLOGY

A retrospective cross-sectional study was performed utilizing the database of the Malaysian Psoriasis Registry between July 2007 and December 2017. Case patients were defined as subjects with psoriasis and concomitant diabetes mellitus. The control group included psoriasis patients without diabetes mellitus. Logistic regression models were used for multivariate analyses.

RESULTS

17,360 patients with psoriasis were included in this study. Of this, 17.7% of patients have diabetes mellitus. 59.1% were males. 25.3% were Indian. Patients with psoriasis and diabetes were found to have increased cardiovascular co-morbidities such as hypertension, hyperlipidaemia, ischaemic heart disease, stroke and obesity (p<0.001) **(Table 1)**. The factors that was found to be significantly (p<0.05) associated in patients with psoriasis and diabetes are older patients (age > 60 years), older age of onset (>40 years), longer duration of disease (>5 years), Indian ethnicity and BMI ≥ 30 **(Table 2)**. Patients with psoriasis and diabetes have lower DLQI, less clinic visits and days off work, compared to patients without diabetes. However, they are admitted to the hospital more, but the result is not statistically significant **(Table 3)**.

Table 1 Co-morbidities associated in patients with psoriasis and diabetes

Co-morbidities	Diabetic (*n*=3,237)		Non-diabetic (*n*=14,123)		Simple Logistic Regression*		
	n	%	*n*	%	Crude OR	(95% CI)	P-value
Hypertension	2,324	49.2	2,400	50.8	12.93	(11.83, 14.14)	**<0.001**
Hyperlipidaemia	1,621	49.5	1,657	50.5	8.09	(7.41, 8.82)	**<0.001**
Ischaemic heart disease	541	55.0	442	45.0	6.41	(5.62, 7.32)	**<0.001**
Cerebrovascular disease	151	50.7	147	49.3	4.81	(3.82, 6.06)	**<0.001**
BMI≥30 (obesity WHO)	867	23.1	2,891	76.9	1.47	(1.34, 1.61)	**<0.001**

*Result was based on available information

Table 3 QOL and productivity parameters observed in patients with psoriasis and diabetes

Parameters	Diabetic (*n*=3,237)		Non-diabetic (*n*=14,123)		Simple Logistic Regression**		
	n	%	*n*	%	Crude OR	(95% CI)	P-value
DLQI, mean (SD)	7.0 (6.10)		8.9 (6.64)				
≤10	1,310	22.6	4,495	77.4	1.77	(1.56, 2.00)	**<0.001**
>10	402	14.2	2,438	85.8	1.00 *(ref.)*		
No. of clinic visit due to psoriasis*, median (IQR)	1.0 (2.00)		1.0 (2.00)				
0 time	836	19.1	3,549	80.9	1.00 *(ref.)*		**0.005**
1-2 times	1,673	18.7	7,276	81.3	0.98	(0.89, 1.07)	
3-10 times	483	16.2	2,504	83.8	0.82	(0.72, 0.93)	
11-48 times	17	14.7	99	85.3	0.73	(0.43, 1.23)	
No. of days off work due to psoriasis*, median (IQR)	0.0 (0.00)		0.0 (0.00)				
0 day	2,841	18.6	12,395	81.4	1.00 *(ref.)*		**<0.001**
1-3 days	66	10.2	582	89.8	0.50	(0.38, 0.64)	
4-10 days	27	11.4	209	88.6	0.56	(0.38, 0.84)	
11-90 days	19	15.2	106	84.8	0.78	(0.48, 1.28)	
No. of hospital admissions*, median (IQR)	0.0 (0.00)		0.0 (0.00)				
0 time	2,926	18.3	13,086	81.7	1.00 *(ref.)*		0.265
1-2 times	60	19.2	253	80.8	1.06	(0.80, 1.41)	
3-15 times	11	28.2	28	71.8	1.76	(0.87, 3.53)	

*Over a 6-month period.
IQR = 75th – 25th percentile.
**Result was based on available information.

Table 2 Factors associated in patients with psoriasis and diabetes

Variable	Diabetic (*n*=3,237)		Non-diabetic (*n*=14,123)		Multiple Logistic Regression[a]		
	n	%	*n*	%	Adj. OR	(95% CI)	P-value
Age:							
17-40 years	309	4.3	6,956	95.7	1.00 *(ref.)*		**<0.001**
41-60 years	1,649	24.7	5,030	75.3	5.54	(4.26, 7.21)	
>60 years	1,279	37.4	2,137	62.6	10.37	(7.64, 14.08)	
Age of onset:							
≤40 years (Type 1)	1,271	11.5	9,809	88.5	0.68	(0.56, 0.81)	**<0.001**
>40 years (Type 2)	1,914	32.0	4,068	68.0	1.00 *(ref.)*		
Duration of disease:							
≤5 years	1,097	15.2	6,128	84.8	1.00 *(ref.)*		**0.014**
>5 years	2,088	21.2	7,749	78.8	1.26	(1.05, 1.50)	
Gender:							
Male	1,912	19.5	7,895	80.5	1.00 *(ref.)*		0.511
Female	1,325	17.5	6,228	82.5	0.95	(0.82, 1.11)	
Ethnicity:							
Indian	818	27.3	2,176	72.7	1.79	(1.49, 2.14)	**<0.001**
Non-Indian	2,417	16.8	11,943	83.2	1.00 *(ref.)*		
Obesity group (WHO):							
BMI <30	2,008	17.0	9,834	83.0	1.00 *(ref.)*		**<0.001**
BMI ≥30	867	23.1	2,891	76.9	1.85	(1.56, 2.19)	
Type of psoriasis:							
Erythrodermic	39	13.7	246	86.3	0.55	(0.29, 1.06)	0.073
Non-erythrodermic	3,012	18.8	13,045	81.2	1.00 *(ref.)*		
Body surface area:							
≤10%	1,703	19.3	7,129	80.7	1.00 *(ref.)*		0.222
>10%	446	17.1	2,169	82.9	1.13	(0.93, 1.37)	
Total skin score:							
<10	2,979	19.0	12,710	81.0	1.00 *(ref.)*		0.816
≥10	165	14.7	955	85.3	0.96	(0.66, 1.40)	
Nail involvement:							
Yes	1,900	19.5	7,836	80.5	1.03	(0.88, 1.20)	0.728
No	1,281	17.6	6,002	82.4	1.00 *(ref.)*		
DLQI:							
≤10	1,310	22.6	4,495	77.4	1.00 *(ref.)*		0.061
>10	402	14.2	2,438	85.8	0.84	(0.71, 1.01)	

(Total N=18,323, but missing on diabetic data of 963 cases)
*Result was based on available information.
Adj. OR = Adjusted odds ratio; ref. = Reference; NS = Not significant
a Enter method was applied.
Multicollinearity was checked and not found.
Hosmer-Lemeshow test (P=0.554), classification table (overall correctly classified percentage=80.5%) and area under the ROC curve (75.8%) were applied to check the model

DISCUSSION

Patients with psoriasis and diabetes were found to have other associated cardiovascular co-morbidities, like hypertension, hyperlipidaemia, ischaemic heart disease, cerebrovascular disease and obesity. This is not surprising as other studies have shown increased cardiovascular co-morbidities in patients with psoriasis. Patients with concomitant psoriasis and diabetes were also older (age > 60 years), with older age of onset (>40 years) and longer duration of disease (>5 years). There were also more Indian patients with concomitant diabetes and psoriasis. Obesity is a known risk factor for diabetes, and our patients with concomitant diabetes and psoriasis were also found to have higher BMI.

LIMITATIONS

The diagnosis of psoriasis was based on reported data. Therefore overestimation (false-positive cases) and underestimation (false-negative cases) of psoriasis patients may exist, thereby being a source for information bias. Another limitation is selection bias that may occur due to the possibility that reporting of both psoriasis and associated illnesses is higher in individuals who are seeking medical care. Last but not least, the dataset of the Malaysian Psoriasis Registry recorded diagnoses only from 2007 and did not record the date of onset of diabetes mellitus and therefore conclusions on causal effect between psoriasis and diabetes mellitus could not be made.

CONCLUSION

17.7% of psoriasis patients in our study had diabetes and higher risk of other cardiovascular co-morbidities. Older patients, younger age of onset, longer duration of disease, Indian ethnicity and BMI ≥ 30 were the predictive factors of psoriasis patients with diabetes in our study.

CONFLICT OF INTEREST & ACKNOWLEDGEMENT

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