

Factors Affecting Quality of Life in Adult Patients with Thalassaemia Major and Intermedia

Dear Editor,

Thalassaemia is one of the most common genetic disorders in Southeast Asian countries. It is a major health problem in Malaysia with a recent reported carrier rate of about 6.8%.¹ Patients with β -thalassaemia major (TM) require lifelong transfusion while patients with thalassaemia intermedia (TI) generally do not need regular blood transfusions but may still require medical attention at the later part of life due to complications of iron overload.

Although overall survival of TM patients has improved over the years due to global health efforts and the advances in medical management, quality of life (QOL) of these patients is reported to be poorer compared to the normal population.² It was also reported that up to 50% of thalassaemia patients have some forms of psychological disorders, e.g. anxiety and depression which correlate negatively with QOL.³

There have not been any studies which looked at the adult patients with thalassaemia in the Southeast Asian region. In this study, we hope to investigate the QOL of adult patients who have TM and TI and evaluate the clinical and psychological factors which may affect QOL.

Materials and Methods

This is a cross-sectional study where patients aged 18 years and above with TM and TI attending 2 major hospitals in Malaysia were recruited over a period of 3 months. The study was approved by both institutions' ethics committees. Patients were defined as TM when they are transfusion-dependent and TI when their haemoglobin levels remain between 7 g/dl to 10 g/dl without the need for regular blood transfusions. Patients' clinical information and iron overload complications were obtained from medical records. The most recent serum ferritin level was used and a level of ≤ 1000 $\mu\text{g/L}$ was considered as well chelated.

Validated World Health Organization Quality of Life (WHOQOL)-BREF questionnaire was used to evaluate the QOL.⁴ Permission for the use of the questionnaire was obtained. This questionnaire was chosen as it has been used before for thalassaemia patients.² The WHOQOL-BREF contains 26 questions – 1 question on overall perception of QOL, 1 question on overall perception of health while the remaining questions evaluate 4 domains of QOL: physical

health, psychological, social and environmental. For the question on overall perception of QOL and health, the raw score was used. Scores of the 4 domains were calculated and transformed to a 0-100 scale, according to the manual provided. Higher score denoted higher QOL.

Symptoms of anxiety and depression were made based on Hospital Anxiety and Depression Scale (HADS). HADS had a total of 14 items which were divided into 2 subscales: anxiety subscale (7 items) and depression subscale (7 items).⁵ A score of 0 to 7 indicates absence of symptoms of anxiety or depression; a score of 8 to 10 indicates presence of symptoms but to a moderate degree, and a score of 11 or greater indicates significant symptoms.⁵ A score of 8 and above was used to indicate presence of symptoms of anxiety or depression.

Demographic characteristics and clinical information were analysed with mean score of QOL using chi-square or t-test where appropriate. Multiple linear regression analysis was used to determine any independent associations when needed. *P* value of <0.01 was considered as clinically significant. Data was analysed using the Statistical Package for Social Sciences (SPSS) version 17.0.

Results

Table 1 summarises the 127 patients' clinical demographic information and their QOL scores. The mean scores of all domains of QOL in relation to patients' characteristics including HAD scores are shown in Table 2. After multivariate analysis, patients with higher education level had significantly better physical and environmental scores. Patients with anxiety symptoms scored poorly in all domains of QOL except for overall perception of QOL while patients with depressive symptoms reported poorer scores in psychological, social and environmental domains (Table 3).

Discussion

It has been demonstrated that patients with thalassaemia have impaired QOL compared to healthy populations.^{2,6} The overall QOL and health score of our adult thalassaemia patients are lower compared to those reported in healthy populations elsewhere in Malaysia.⁷ In this study, patients

Table 1. Demographic Characteristic of Patients

	TI (n = 66) No (%)	TM (n = 61) No (%)	Total (n = 127) n (%)	P Value
Median age, years	33	25	28	0.0001*
Range	(18 – 65)	(18 – 44)	(18 – 65)	
Gender				
Male	18 (27)	30 (49)	48 (37.8)	0.011*
Female	48 (73)	31 (51)	79 (62.2)	
Race				
Malay	57 (86.4)	25 (41)	82 (64.1)	0.0001*
Chinese	9 (13.6)	32 (56)	43 (33.6)	
Indian	0	2 (3)	2 (1.6)	
Marital status				
Married	37 (56)	6 (10)	43 (34)	0.0001*
Single	29 (44)	55 (90)	84 (66)	
Education background				
Primary/secondary	38 (58)	38 (58)	68 (54.3)	0.35
College/university	27 (41)	27 (41)	58 (45.7)	
Household income				
≤RM 5000/month	55 (83)	44 (72)	99 (78)	0.13
>RM 5000/month	11 (17)	17 (28)	28 (22)	
Employment status				
Employed	37 (56)	39 (64)	76 (59.8)	0.36
Unemployed	29 (44)	22 (36)	51 (40.2)	
Presence of ≥1 complications	19 (29)	42 (69)	61 (48)	0.0001*
Serum ferritin ≤1000 µ/L	18 (27)	9 (15)	27 (21.3)	0.08
Chelating agents				
Yes	53 (80)	60 (98)	113 (88)	0.005*
No	13 (20)	1 (2)	14 (12)	
Types of chelating agents				
Desferrioxamine	8 (15)	15 (25)	23 (20)	0.0001*
Oral agents alone	36 (68)	17 (28)	53 (47)	
Combination	9 (17)	28 (47)	37 (33)	
Anxiety ≥8	20 (30)	20 (33)	40 (32)	0.7
Depression ≥8	8 (12)	12 (20)	20 (16)	0.2
Overall QOL score	3.82	3.67	3.75	0.25
Overall health score	3.58	3.23	3.41	0.68
Physical score	62.03	62.92	62.46	0.18
Psychological score	68.2	63.9	66.13	0.58
Social score	65.3	61.79	63.61	0.68
Environmental score	67.38	62.62	65.09	0.14

TI: Thalassaemia intermedia; TM: Thalassaemia major; QOL: Quality of life

*Statistically significant.

with TI generally reported better scores in most of the QOL domains although this was not statistically significant. In our study, the better QOL may be due to the lower complication rate and the less frequent need of transfusion

in TI patients compared to TM patients. Patients who have higher education levels have significantly better physical health, and environmental scores. This may be explained by the possibility that patients who are of higher education

Table 2. Mean Scores of QOL with Patients' Socioclinical Demographic Characteristics

Variables	Overall QOL	Overall Health	Physical	Psychological	Social	Environmental
Gender						
Male	3.79	3.46	65.77	66.96	64.96	65.67
Female	3.72	3.38	60.44	65.63	62.80	64.75
Race						
Malay	3.94*	3.64*	64.53	70.20*	66.92*	69.29*
Chinese	3.40*	3.00*	58.50	59.00*	57.88*	57.52*
Marital status						
Married	3.88	3.65	63.95	72.00*	69.90*	69.36
Single	3.67	3.29	61.72	63.24*	60.51*	62.99
Education status						
Primary/secondary	3.59	3.29	58.58*	62.99	61.03	60.46*
College/university	3.93	3.55	67.07*	69.88	66.69	70.60*
Employment status						
Employed	3.76	3.41	64.80*	66.54	63.71	66.17
Unemployed	3.62	3.35	55.26*	63.85	61.74	60.59
Serum ferritin						
≤1000 µg/L	3.81	3.56	64.70	69.15	66.63	65.63
>1000 µg/L	3.73	3.37	61.85	65.32	62.80	64.95
Complications						
None	3.63	3.67*	59.48	69.35	67.50	68.62
≥1	3.82	3.12*	65.21	62.66	59.41	61.28
HADA score						
<8	3.92*	3.64*	67.31*	71.93*	67.99*	69.48*
≥8	3.40*	2.95*	52.33*	54.08*	54.70*	55.90*
HADD score						
<8	3.87*	3.56*	65.30*	69.85*	67.01*	69.48*
≥8	3.15*	2.70*	48.00*	47.25*	46.60*	49.85*

HADA: Hospital Anxiety and Depression Scale-Anxiety; HADD: Hospital Anxiety and Depression Scale-Depression; QOL: Quality of life

*P value <0.01.

Table 3. Multiple Linear Regression Analysis on QOL and Patients' Characteristics with Beta Coefficients Values

Variables	Overall QOL	Overall Health	Physical	Psychological	Social	Environmental
Gender						
	-0.023	-0.062	-0.190	-0.039	-0.076	-0.008
Diagnosis						
(TM/TI)	-0.049	0.020	-0.144	-0.078	-0.107	0.019
Ethnic						
(Malay/Chinese)	-0.235	-0.185	-0.092	-0.178	0.107	-0.214
Marital status	0.019	0.070	0.093	0.175	0.198	0.098
Employment status	0.024	-0.015	-0.138	0.203	0.011	-0.043
Education level	0.226	0.169	0.239*	0.162	0.097	0.238*
Household income	0.123	-0.064	0.016	0.012	0.066	0.064
Complications	-0.039	0.139	0.092	-0.008	0.087	0.028
Chelation status	-0.020	-0.033	-0.044	-0.022	-0.040	0.023
Anxiety	-0.189	-0.244*	-0.322*	-0.347*	-0.193	-0.252*
Depression	-0.168	-0.165	-0.221	-0.296*	-0.268*	-0.221*

TI: Thalassaemia intermedia; TM: Thalassaemia major; QOL: Quality of life

*P value <0.01.

levels are likely to be higher income earners with more financial resources and access to better healthcare.

It is worthy to note that only 22% of patients in our study are considered adequately chelated. It is likely that compliance and access to adequate dose of iron chelators are the possible factors. We found no significant difference in all aspects of QOL with serum ferritin level, which is consistent with the study by Safizadeh et al but contrary to other studies.^{2,6,8} High rate of psychological stress in patients with thalassaemia had been consistently reported in many countries.^{3,9} This is probably the first study which looks at the prevalence of anxiety and depression disorders in adult patients with thalassaemia in the Southeast Asian region. In this study, we found 32% of patients having symptoms suggestive of anxiety and 16% of depression. Presence of symptoms of anxiety and depression affect QOL. The relatively high prevalence of anxiety symptoms in our patients needs to be addressed especially since there is evidence which showed that anxiety disorders is associated with poor adherence to medication.¹⁰ Therefore, it is important for the treating physicians to identify this and refer patients for appropriate counselling or therapy.

The limitations of this study include the small sample size, lack of age and gender-matched QOL scores for normal population and iron overload complications are recorded retrospectively.

Conclusion

Although we found no difference in QOL between patients with TM and TI, the lower QOL reported compared to the general population should be addressed. Psychological status of patients has significant effects on their QOL and this needs to be identified early so that appropriate therapies can be instituted.

REFERENCES

1. Jameela S, Sharifah Sabirah SO, Babam J, Phan CL, Visalachy P, Chang KM, et al. Thalassaemia screening among students in a secondary school in Ampang, Malaysia. *Med J Malaysia* 2011;66:522-4.
2. Ansari Sh, Bagheselimi A, Azarkeivan A, Nojomi M, Hassanzadeh R. Quality of life in patients with thalassemia major. *Iran J Ped Hematol Onco* 2014;4:57-63.
3. Yengil E, Acipayam C, Kokacya MH, Kurhan F, Oktay G, Ozer C. Anxiety, depression and quality of life in patients with beta thalassemia major and their caregivers. *Int J Clin Exp Med* 2014;7:2165-72.
4. Skevington SM, Lotfy M, O'Connell KA. The World Health Organization's WHOQOL-BREF quality of life assessment: psychometric properties and results of the international field trial. A report of the WHOQOL Group. *Qual Life Res* 2004;13:299-310.
5. Zigmond AS, Snaith RP. The hospital anxiety and depression scale. *Acta Psychiatr Scand* 1983;67:361-70.
6. Safizadeh H, Farahmandinia Z, Nejad SS, Pourdamghan N, Araste M. Quality of life in patients with thalassemia major and intermedia in Kerman-Iran (I.R.). *Mediterr J Hematol Infect Dis* 2012;4:e2012058.
7. Shaik MM, Hassan NM, Tan HL, Gan SH. Quality of life and migraine disability among female migraine patients in a tertiary hospital in Malaysia. *Biomed Res Intern* 2015; Article ID 523717:9 pages. Available at: www.hindawi.com/journals/bmri/2015/523717/cta/. Accessed on 22 May 2015.
8. Dahlui M, Hishamshah MI, Rahman AJA, Aljunid SM. Quality of life in transfusion-dependent thalassemia patients on desferrioxamine treatment. *Sing J Med* 2009;50:794-9.
9. Khoury B, Musallam KM, Abi-Habib R, Bazzi L, Ward Z, Succar J, et al. Prevalence of depression and anxiety in adult patients with β -thalassaemia major and intermedia. *Int J Psychiatry Med* 2012;44:291-303.
10. Mednick L, Yu S, Trachtenberg F, Xu Y, Kleinert DA, Giardina PJ, et al. Symptoms of depression and anxiety in patients with thalassemia: prevalence and correlates in thalassemia longitudinal cohort. *Am J Hematol* 2010;85:802-5.

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