



LIFE FUNCTION AND SIDE EFFECTS IN CHRONIC MYELOID LEUKEMIA PATIENTS RECEIVING TARGETED THERAPY

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INTRODUCTION

- Chronic Myeloid Leukemia (CML) has become a highly surviving chronic disease with the discovery of Tyrosine Kinase Inhibitors (TKI) targeted therapy. However, it might cause some side effects and influence life function.
- Aim of the study
 - Explore life function and side effects of CML patients under TKI medication.
 - Compare the differences of life function and side effects between first (Glivec) and second (Tasigna and Dasatinib) generation of TKI targeted medicine.

METHOD

- Cross-sectional study with consecutive sampling to recruit eligible subjects from hematological outpatient department in a medical center in Northern Taiwan.
- Instruments:
 - WHO Disability Assessment Scale (WHO-DAS)
 - Symptom Severity Scale (SSS)
- Analyses:
 - Descriptive statistics
 - Mann-Whitney Kruskal-Wallis test
 - Spearman's correlation.
- IRB approval and patients' consents were obtained before data collection. Patients were assessed by a trained research nurse.

RESULT

- 80 patients in total.
- The top three severe side effects (Table 1)
 - 1st generation TKI (Glivec) : skin discoloration (7.13), muscle cramps (3.58), and periorbital edema (3.29)
 - 2nd generation TKI (Tasigna, Dasatinib) : weight change (3.40), fatigue (2.95), and skin rash (2.64).
- Life Function :
 - There was no difference in life functions between the two groups of patients. (Table 2)
 - 50% patients experienced mild difficulty in function of "participation in society", 5.1% expressed moderate to extreme difficulty. (Table 3)
- Correlation between symptom and life function (Table 4)
 - Fatigue is correlated with the overall life function(0.24) and cognitive disability(0.31).
 - Muscle cramping is correlated with self-care (0.28).
 - Although skin discoloration shows to be a severe symptom (mean=7.31) no significant correlation is found with any aspect of life function.

CONCLUSION

- Although not experiencing severe side effects, CML patients still suffer from some major symptoms.
- Future study to develop intervention to decrease those major side effects and enhance patients' life function are urgently needed.

Table 1. Comparison of Symptom Severity Scale between 1st and 2nd generation TKI target therapy (n=80)

	1 st generation Glivec (N=38)		2 nd generation Tasigna and Dasatinib (N=42)	
	Mean (SD)	Rank	Mean (SD)	Rank
Skin discoloration	7.13(3.50)	1	2.21(3.89)	4
Weight change	3.00(3.80)	4	3.40(3.92)	1
Muscle cramping	3.58(3.29)	2	0.83(1.99)	
Fatigue	2.61(2.52)		2.95(3.09)	2
Skin rash	0.63(1.46)		2.64(3.38)	3
Periorbital swelling	3.29(3.29)	3	0.88(2.05)	
Insomnia	1.29(2.77)		2.12(3.62)	5
Hair discoloration	2.82(3.80)	5	2.10(3.38)	
Pain	1.08(1.89)		1.95(2.61)	
Nausea	1.63(2.39)		0.02(0.15)	
Xerostomia	1.03(1.76)		1.57(2.577)	
Diarrhea	2.00(2.61)		0.62(1.38)	
Limb numbness	0.63(1.05)		1.24(1.67)	
Leg edema	2.82(3.80)		1.12(2.46)	

Table 4. Correlation between WHO-DAS score and Symptom Severity Scale (n=80)

	1	2	3	4	5	6	7	8	9	10	11	12	13
1.DAS-Total Score	1.00												
2.DAS-Understanding and communicating	0.66**	1.00											
3.DAS-Getting around	0.40**	0.27*	1.00										
4.DAS-Self-care	0.19	0.11	0.20	1.00									
5.DAS-Getting along with people	0.30**	0.20	0.11	-0.03	1.00								
6.DAS-Life activities	0.57**	0.41**	0.52**	0.13	0.24*	1.00							
7.DAS-Participation in society	0.86**	0.43**	0.07	0.19	0.27*	0.31**	1.00						
8.Fatigue	0.24*	0.31**	0.12	0.19	-0.08	0.06	0.11	1.00					
9.Muscle Cramps	0.15	0.06	0.19	0.28*	-0.09	0.18	0.09	0.23*	1.00				
10.Periorbital edema	0.13	0.06	0.06	0.00	-0.07	0.14	0.18	0.34**	0.36**	1.00			
11.Skin discoloration	0.06	0.07	0.08	0.01	-0.15	0.11	0.04	0.15	0.50**	0.58**	1.00		
12.Hair discoloration	0.04	0.13	0.05	0.07	-0.07	0.05	-0.01	0.05	0.20	0.16	0.36**	1.00	
13.Weight change	0.13	-0.05	0.29*	0.18	-0.08	0.07	0.08	0.21	0.01	0.25*	0.01	0.13	1.00

* =p<0.05 **=p<0.01

Table 2. Comparison of life function between 1st and 2nd generation TKI targeted therapy (n=80)

WHO-DAS domain	1 st generation(N=38)	2 nd generation(N=42)	T value	P value
	Mean (SD)	Mean (SD)		
Understanding and communicating	2.96(6.27)	2.38(3.70)	0.51	0.61
Getting around	1.05(3.32)	0.71(1.77)	0.58	0.57
Self-care	0.16(1.01)	0.15(0.96)	0.07	0.94
Getting along with people	2.76(14.74)	0.12(0.77)	1.11	0.28
Life activities	6.82(18.39)	1.34(4.58)	1.79	0.08
Participation in society	10.77(17.21)	6.03(6.30)	1.67	0.10
Total Score	4.78(9.00)	2.48(1.88)	1.55	0.13

Table 3. Life function disability level of patients under TKI targeted therapy (n=80)

WHO-DAS Domain	None	Mild	Moderate	Severe	Extreme
	n(%)	n(%)	n(%)	n(%)	n(%)
Understanding and communicating	63(78.8)	16(20.0)	1(1.3)	0(0.0)	0(0.0)
Getting around	70(87.5)	10(12.5)	0(0.0)	0(0.0)	0(0.0)
Self-care	78(97.5)	2(2.5)	0(0.0)	0(0.0)	0(0.0)
Getting along with people	77(96.3)	2(2.5)	1(1.3)	0(0.0)	0(0.0)
Life activities	69(86.3)	6(7.5)	4(5.0)	0(0.0)	1(1.3)
Participation in society	36(45.0)	40(50.0)	3(3.8)	0(0.0)	1(1.3)
Total Score	73(91.3)	6(7.5)	0(0.0)	1(1.3)	0(0.0)

Note: WHO-DAS scale uses and 0-4 scoring scale to assess the severity of disability, the higher the score the more difficult it is to complete the task. 0=no difficulty, 1=mild difficulty, 2=moderate difficulty, 3=severe difficulty, 4=extreme difficulty.