

## Original Research Article

# Assessment of health related quality of life (HRQoL) in patients with Meige's syndrome

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## ABSTRACT

**Background:** There is paucity of literature regarding health related quality of life (HRQoL) in Meige's syndrome (MS) especially from India. This study assessed HRQoL in its global and disease specific aspect by previously validated instruments in patients with Meige's syndrome.

**Methods:** The study was performed in AIIMS, New Delhi. Subjects with Meige's syndrome as well as age and gender matched healthy controls were enrolled from Movement Disorder and botulinum toxin clinic, Department of Neurology, AIIMS, New Delhi. Uneducated patient, those could not read questionnaires and cases who had received botulinum toxin within 6 months were excluded from the study.

**Results:** A 14 pts of Meige's syndrome were enrolled and 14 age matched controls were taken. All the pts of Meige's syndrome scored worse in SF-36 as compared to controls in areas of role physical ( $p=0.002$ ), bodily pain ( $p=0.001$ ), general health ( $p<0.001$ ), social functioning ( $p=0.05$ ) and role emotion ( $p<0.001$ ). 50% of patients with Meige's syndrome had depression out of whom 21.4 % had moderate depression. Patients with Meige's syndrome had significantly impaired scores in 10 of the 12 subscales which was profound in areas of ocular pain, near activities, distance activities, social functioning, role difficulties, dependency, driving, compared to borderline impairment in general vision, mental health, color vision.

**Conclusions:** This study clearly demonstrated that pts with Meige's syndrome, suffered from significant impairment in HRQoL as compared to controls. Higher proportion of patients with Meige's syndrome suffered from moderate depression compared to their control. Pts with Meige's syndrome had severe impairment of vision related quality of life.

**Keywords:** BDI, BS, HRQoL, OMD, NEI-VFQ, SF-36

## INTRODUCTION

Dystonia is defined as a "neurological syndrome characterized by involuntary, sustained, patterned contractions of opposing muscles, causing twisting and repetitive movement or abnormal postures" may be associated with tremor (dystonia tremor) or myoclonus (myoclonic dystonia).<sup>1</sup> Oro-facial-buccal dystonia (Meige's or Brughel's syndrome) is a combination of

blepharospasm and oromandibular dystonia. Blepharospasm is characterized by involuntary contractions of orbicularis oculi muscles with subsequent intermittent or continuous eyelid closures. Oromandibular dystonia is a focal dystonia characterized by forceful contractions of the face, jaw, and/or tongue causing difficulty in opening and closing the mouth, often affecting chewing and speech. Primary dystonia is one of the most prevalent movement disorders. Worldwide

prevalence of focal dystonia varies from 3-732 per 1,00,000 population from various studies.<sup>2-4</sup> In only Indian community based study, crude prevalence rate of focal dystonia is 43.9 per 1,00,000 population. In majority of studies cervical dystonia (CD) and blepharospasm (BSP) are found to be common dystonia accounting for about 75% of cases with primary focal dystonia. Indian study by Das et al, shows that writer's cramp and blepharospasm are the most common focal dystonia.<sup>5</sup> Meige's syndrome is rare type of dystonia.

Very little is known about impact of focal dystonias specially Meige's syndrome on quality of life. In most cases life expectancy is not reduced however it may be responsible for considerable morbidity in terms of pain, low self-esteem, depression, embarrassment and poor social interaction. Health-related QoL (HRQOL) is a multi-dimensional concept that encompasses the subjective assessment of the impact of illness or treatment across the physical, psychological, social and somatic domains of functioning and the well being.<sup>6</sup> There is paucity of literature regarding health related quality of life in Meige's syndrome especially from India. Little is known about the clinical and demographic factors associated with poor HRQoL and depression in patients with Meige's syndrome. Since, Meige's syndrome have a life time visible chronic disability, it is important to identify the factors that influence quality of life in these patients to optimize the goal directed therapy. This study was conducted to assess HRQoL in its global and disease specific aspect by previously validated instruments in patients with Meige's syndrome.

## METHODS

The study was performed between Jan 2007 to July 2008 in All India Institute of Medical Sciences, New Delhi. Subjects with Meige's syndrome as well as age and gender matched healthy controls were enrolled from movement disorder and botulinum toxin clinic, Department of Neurology, AIIMS, New Delhi. All the patients aged >15 years with clinical diagnosis of focal dystonias by movement disorder specialist, were screened for the enrollment in the study. Uneducated patient, those could not read questionnaires, cases that had associated other neurological or debilitating systemic disorders, secondary/pediatrics dystonias, pregnancy or received botulinum toxin within 6 months or underwent surgical treatment were excluded from the study. Ethical clearance was taken from institutional ethical committee (IEC) of All India Institute of Medical Sciences, New Delhi. Written informed consent was taken after explaining nature and need of the study. Finally study patients were enrolled after fulfilling the inclusion and exclusion criteria.

### Study Questionnaire

After enrollment, demographic and clinical details of cases were noted down in a preset form designed for the

study. Each patient filled SF-36 (for HRQoL), BDI (Beck Depression Inventory for depression). Patients of Meige's syndrome filled NEI-VFQ (for disease specific quality of life). BS severity scale was filled by investigator during same session.

### Global HRQoL

SF-36<sup>R</sup> (short form 36) is acceptable, internally consistent, valid and reliable measure of the health status of patients.<sup>7</sup> SF36R a 36 item, self report generic measure that provides a profile assessment of health-related quality measuring multi-item variables, which includes; physical functioning (PF) 10 items; role limitation due to physical problem (RP, 4 items), bodily pain (BP, 2 items), general perception of health (GH, 5 items), vitality (VT, 4 items), social functioning (SF, 2 items), role limitation due to emotional problem (RE, 3 items) and mental health (MH, 5 items).<sup>8</sup> A score ranging from 0 (worst health) to 100 (best health) is generated for each domain/subscale.

### Disease specific quality of life scales

In patients of Meige's syndrome, disease specific quality of life was assessed using the 25-item National Eye Institute Visual Function Questionnaire (NEI-VFQ-25).<sup>9</sup> NEI-VFQ Scale comprises 25 items, which constitute 12 following subscales-General health (GH), General vision (GV), Ocular pain (OP), Near activities (NV), Distance activities (DV), Social functioning (SF), Mental health (MH), Role difficulties (SR), Dependency (Dep), Driving (DRV), Color vision (CV) and Peripheral vision (PV). Scoring of subscales was carried out per standard procedures; for each subscale, scores could theoretically range from 0 to 100, with lower scores indicating more disability. This scale has been used in patients with Meige's syndrome.<sup>9</sup>

### Disease severity scales

In patients with Meige's syndrome, blepharospasm rating scale (BRS) was used to assess severity of symptoms.<sup>10</sup> Results of BRS and OMDRS were rated as minimal ( $\leq 25\%$  of max score), moderate (26%-50% of max score), severe (51-75% of max score) and very severe ( $>75\%$  of max score).

### Statistical analysis

Comparison between all of the variables described earlier for patients vs. control was carried out using t- test and X (chi-square) test for continuous and categorical variables, respectively. Association between SF 36 and NEI-VFQ-25 subscales and variables addressing disease duration, age of onset and severity were evaluated by Pearson correlation coefficients. P values of 0.05 or less (2-sided) were considered statistically significant. All data were analyzed using SPSS 12 software.

## RESULTS

### Demographic characteristics

Meige's syndrome is a rare form of focal dystonia so we were able to enroll only 14 botulinum toxin naive patients

of Meige's syndrome who have not received it in last 6 months. Demographic details of these patients are described in Table 1.

There was no significant difference in demographic details between patients with dystonia and control.

**Table 1: Demographic characteristics among patients with Meige's syndrome and MS- controls.**

Demographic Characteristics	Meige's (n=14)	Controls (n=22)	Significance p value
Age mean (years) (SD)	47.1 (7.5)	46.86 (10.9)	0.934 (NS)
<b>Age groups, %</b>			
<39yrs	3 (21.4)	5 (22.7)	0.865 (NS)
40-49 yrs	5 (35.7)	8 (36.4)	
50-59yrs	6 (42.9)	8 (36.4)	
60-69 yrs	0 (0)	1 (4.5)	
>70yrs	0 (0)	0 (0)	
M:F(n)	7:7	12:10	0.53 (NS)
<b>Education, (%)</b>			
≤ 12th standard	50	18.2	0.08 (NS)
Graduate	35.7	72.7	
Post graduate or higher	14.3	9.1	
<b>Marital status, (%)</b>			
Married	92.9	86.4	0.49 (NS)
Non married	7.1	13.6	
<b>Current employment status, (%)</b>			
Currently employed	57.1	68.2	0.32 (NS)
Retired	0	0	
Housewives	42.9	31.8	
Age of onset mean (years), SD	43 (7.8)	NA	
<b>Age of onset groups, No. (%)</b>		NA	
≤ 39yrs	35.7		
40-49yrs	35.7		
50-59 yrs	28.6		
60-69 yrs	0		
>70 yrs	0		
Duration mean (years), SD	4.5 (2.9)	NA	
<b>Duration groups (%)</b>			
≤ 2 yrs	35.7	NA	
3-5 yrs	35.7		
>5yrs	28.6		

### QOL characteristics

Compared with controls, patients with Meige's syndrome suffered from statistically significant impaired global health related quality of life (SF36) in areas of role physical ( $p=0.002$ ), bodily pain ( $p=0.001$ ), general health ( $p<0.001$ ), social functioning ( $p=0.05$ ) and role emotion ( $p<0.001$ ), while there was no significant difference in areas of physical functioning ( $p=0.127$ ), vitality ( $p=0.357$ ) and mental health ( $p=0.108$ ). Patients with Meige's syndrome had significantly impaired BDI score

as compared to control group (mean BDI  $12.14\pm6.7$  vs.  $5.09\pm4.8$ ,  $p=0.001$ ) (Table 6). 50% of patients with Meige's syndrome had depression (compared to 19 % of controls) out of which 21.4% had moderate depression (compared to 0 % of controls) (Table 2).

NEI-VFQ assessment showed that patients with Meige's syndrome had significantly impaired scores in 10 of the 12 subscales (except peripheral vision,  $p=0.077$  and general health,  $p=0.47$ ) which was more profound in areas of ocular pain ( $p<0.001$ ), near activities ( $p=0.007$ ), distance activities ( $p=0.014$ ), social functioning

( $p=0.001$ ), role difficulties ( $p<0.001$ ), dependency ( $p=0.001$ ), driving ( $p=0.002$ ) compared to borderline impairment in general vision ( $p=0.031$ ), mental health ( $p=0.038$ ), color vision ( $p=0.047$ ). An 7.1 % patients of

Meige's syndrome had minimal severity scale scoring while 78.6 % had moderate, 14.3% had severe and no patient had very severe disease scoring.

**Table 2: QOL characteristics among patients with Meige's syndrome and MS-controls.**

Meige's Controls p value			
SF 36 subscale, mean (SD)			
Physical Functioning(PF)	71.4 (26.4)	83.6 (13.8)	0.127 (NS)
Role Physical (RP)	46.4 (27.5)	73.9 (22.5)	0.002
Bodily Pain (BP)	57.2 (26.4)	84.1 (19.2)	0.001
General Health (GH)	34.8 (11.1)	67.6 (21.5)	< 0.001
Vitality (VT)	55.7 (26.4)	63.5 (23.1)	0.36 (NS)
Social Functioning (SF)	66.1 (22.2)	79.5 (17.5)	0.05
Role Emotional (RE)	45.2 (33.6)	82.5 (23.4)	< 0.001
Mental Health (MH)	61.4 (15.6)	70.2 (15.4)	0.11 (NS)
BDI mean (SD)	12.14 (6.7)	5.09 (4.8)	0.001
BDI groups, %			
1-10: Normal	50	81.8	
1-16: Mild mood disturbance	28.6	13.6	
17-20: Borderline depression	0	4.6	
21-30: Moderate Depression	21.4	0	
31-40: Severe depression	0	0	
over 40: Extreme depression	0	0	
NEI-VFQ subscale score, mean (SD)			
General health (GH)	48.21 (24.9)	55.7 (32.7)	0.47(NS)
General vision(GV)	51.4 (20.3)	70.45 (27)	0.03
Ocular pain(OP)	55.36 (20.6)	85.8 (15.1)	<0.001
Near activities(NV)	69.0 (24.1)	87.5 (14.5)	0.007
Distance activities(DV)	66.7 (26.1)	88.6 (21.1)	0.014
Social functioning(SF)	62.5 (27.7)	91.5 (22.3)	0.001
Mental health(MH)	63.8 (27.1)	81.5 (21.8)	0.038
Role difficulties (SR)	50.9 (18.0)	89.2 (16.9)	<0.001
Dependency(Dep)	57.7 (24.8)	85.6 (21.4)	0.001
Driving(DRV)	58.8 (17.5)	85.3 (16.0)	0.002
Color vision (CV)	83.9 (18.6)	95.5 (9.9)	0.047
Peripheral vision (PV)	73.2 (34.6)	92.1 (17.9)	0.077(NS)
Composite score	63.2 (15.4)	86.6 (14.6)	<0.001
BRS severity scales mean (SD) BRS Groups, %		NA - NA	
Minimal ≤ 25%	15.2 (4.53)		
Moderate 26% - 50%	7.1		
Severe 51- 75%	78.6		
Very severe >75%	14.3		
	0		

Negative correlation of physical function ( $p=0.002$ ) and bodily pain ( $p=0.009$ ) domains of SF36 with age, was observed where younger patients performed better in these domain. There was no correlation of gender, marital status to SF 36 subscale. Role physical domain of SF 36 showed significant correlation with education ( $p = 0.019$ ) where educated patient performed better. There was positive correlation of 2 domains of SF36, physical function ( $p=0.002$ ) and vitality ( $p=0.026$ ) with age at

onset where patients with higher age at onset scored better in these domains. No correlation found between SF36 subscales and duration of disease ( $p>0.05$  in all domains).

There was no correlation of (NEI-VFQ) subscales, disease severity and depression scale score with any demographic or disease duration variables ( $p>0.05$ ). Except mental health domain of SF 36, which showed

significant correlation with disease severity ( $p=0.023$ ), no other domains of SF36, NEI-VFQ or BDI showed statistically significant correlation with disease severity.

## DISCUSSION

This study was designed to provide information regarding impact of Meige's syndrome (botulinum toxin naïve patients) on QoL consisting of physical, psychological

and social aspects of life as well as disease specific aspects of life. As effect of Botulinum toxin usually last for 2-4.5 months, all the patients who received botulinum toxin within 6 months were excluded from study.<sup>11</sup>

HRQoL is a tool to assess impact of disease and treatment on QoL. Studies regarding impact of focal dystonia on HRQoL are very limited in numbers (Table 3).

**Table 3: Reviews of studies of Meige's syndrome and BS.**

Author, Year	n	Scale used	Comments
Meige's Syndrome		No study found	
Blepharospasm			
Mueller J et al	BS=89 CD131 Total 220	SF-36 BDI	-CD/BS: baseline score very low as compared to age-matched community sample. -Depression: CD/BS=47 and 37% -BS: SF-36 score: F< M -CD: SF-36, BDI: equal - Btx: Sig. Improv. of clinical symptoms in BS/CD but HR-QoL did not improve in BS.
Reimer J et al	BS: 31 HFS: 21 Total: 52	SF-36 NEI- VFQ, BDRS	In both patient groups global (both SF-36 Component Summaries) and disease-specific (eight of 12 subscales) HRQL were significantly impaired compared with controls.
Tyler Andrew Hall	BS: (n=159) HFS (n=91)	NEI- VFQ	No healthy controls. Both groups were compared to each other. Pts with BS shown worse scores than HFS in certain domains of NEI VFQ.
Oromandibular Spasm			
Nastasi L et al	OMD= 30	The oromandibular dystonia questionnaire-25 (OMDQ-25)	Study was designed to asses impact of botulinum toxin on communication related QoL in OMD patients.
Allyson D et al	OMD =10, Controls = 10	American speech-language-hearing association's quality of communication life scale	Study was designed to asses impact of botulinum toxin on communication related QoL in OMD patients.
Bhattacharyya N, Tarsy D.	SD: 18 OMD: 5 Total: 23	GBI	No general or disease specific quality of life scale used. OMD/SD: Significant benefit with Btx Treatment with Btx for these conditions is effective on the basis of quality of life

(BDI= Beck's depression inventory, BS= blepharospasm, BRDS: Blepharospasm Rating/Disability Scale, Btx: botulinum toxin, CD= cervical dystonia, GBI: Glasgow Benefit Inventory, HFS: hemifacial spasm, NEI-VFQ; national eye inventory- visual function questionnaire, OMD: Oro-mandubular dystonia, QoL= quality of life, SD: spasmodic dysphonia, Pts= Patients)

No study is found to assess effect of Meige's syndrome on quality of life. In BS and OMD there are only few studies regarding impact on QoL, while there is no study in patients with Meige's syndrome. As Meige's syndrome is very rare disorder, we were able to enroll only 14 botulinum toxin naïve patients. The previous research on

BS and OMD addressing HRQOL had methodological limitations, like

- Using questionnaire instruments whose psychometric properties are unknown,
- No control group to compare,
- Failure to focus on vision targeted HRQoL domains,



- Studies have included patients treated with botulinum toxin (as effect of botulinum toxin on QoL is still controversial in BS)
- Comparing QoL with other disease dystonia and not with healthy control group.<sup>12-13</sup>

This study clearly demonstrated that patients with Meige's syndrome suffered from significant impairment in HRQoL as compared to controls. In SF-36, patients with Meige's syndrome had impaired HRQoL in 5 domains (except vitality, physical functioning and mental health). Reduced HRQoL in BS patients had been described in few studies. A study by Muller. J, et al revealed that BS patients scored worse in all eight domains of SF-36 (compared to normal population).<sup>14</sup> Reimer's et al also found that compared with controls, BS patients suffered from statistically significant impaired global HRQL (SF-36) in role physical, general health, vitality and mental health domains ( $p < 0.05$ ).<sup>15</sup> No study is found on pt with Meige's syndrome. Higher proportion of patients with Meige's syndrome suffered from moderate to severe depression compared to their control. Higher incidence of depression could be due to impaired mental and social life and disfigurement. Study by Muller J et al, found that patients with BS frequently had significant depression while study by Scheidt CE, et al, described low level of psychopathologic symptoms in BS patients.<sup>16</sup> No study is found on pt with Meige's syndrome.

Regarding disease specific QoL, patients with Meige's syndrome had severe impairment of vision related quality of life (measure by NEI-VFQ). Patients of Meige's had impairment in all except one sub scale (general health). The maximum impairment was in ocular pain and general vision sub scale, with an average score of 44.5. Psycho-social burden of Meige's syndrome were also noteworthy, as lower averages scores were found in vision-specific domains of mental health, role difficulties and dependency (63.8, 50.9 and 57.7 respectively in pt with Meige's syndrome). Impairment was less in areas of mental health, color vision and peripheral vision. This clearly shows that functional blindness is the key factor which affects everyday performance abilities in these patients. This finding is consistent with the study by Reimer J et al, Hall TA et al and Grandas F et al. described impaired NEI VFQ in 8 of 12 subscales (except driving, peripheral vision, color vision and role difficulty) in BS patients compared to controls.<sup>17,18</sup> Hall TA et al, found significantly impaired scoring in 11 of 12 domains of NEI VFQ in patients of BS (except color vision). Areas of ocular pain, mental health, role difficulties, and dependency were more affected than the other subscale. But no study is found on pt with Meige's syndrome.

There was negative correlation of physical function, bodily pain domains of SF-36 with age in Meige's syndrome patients, concluding that younger patients performed better. This finding was also observed in healthy controls. Study by Muller J et al, had similar

conclusion. Positive correlation of educational status was seen with area of role physical of SF-36 in patients of Meige's syndrome. This reflects that educated patients can understand, accept and handle disorders, better than less educated patients. There was positive correlation of duration of disease and age at onset with 2 of 8 domains of SF-36 in Meige's syndrome patients (vitality and physical function). Patients with more duration or higher age at onset scored better. This indicates that these patients with longer duration of disease and onset at higher age may overcome the difficulties of disease and interference to social life, which is similar to observation in BS pt by Muller J et al.

There was no correlation of disease severity, depression (BDI) or disease specific QoL with age, gender, marital status, occupational status, education, age at onset and duration of disease in patients with Meige's syndrome. On the contrary there was no statistically significant correlation of disease severity with HRQoL, depression and disease specific QoL, in patients of Meige's syndrome suggesting that severity of disease is not the only factor which determines QoL. Other factors like, educational level, duration of disease or age contribute greatly to QoL.

## CONCLUSION

The present study's result regarding HRQoL in its global and disease specific aspect provides further evidence for profound impact of Meige's syndrome on physical, psychological and social aspect of quality of life. This study indicates that psychological counseling of patients, their family members and treatment aiming to treat depression may be a part of comprehensive treatment approach for these patients. Treatment should also improve quality of life of patients which is found lacking in several treatment trials of botulinum toxin indicating requirement of much more broad and comprehensive approach.

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