

Quality of Life and Selected Psychological variables in Patients with Pituitary Tumour after Surgery : A Prospective Study

Varsha Thakur¹, Manju Dhandapani², Rajesh Chhabra³, Sivashanmugam Dhandapani⁴

Corresponding Author : Varsha Thakur, M.Sc. (N), PGIMER, Chandigarh

Corresponding E-mail : thakurvarsha71712@gmail.com

Abstract

Introduction : Quality of life and psychological wellbeing are two things which very significant for having normal functional life in case of post-operative pituitary tumour patients. However, both of them are not full addressed till now. So, this study aimed to assess quality of life and selected psychosocial variables in patients with pituitary tumours after surgery.

Methodology : This is quantitative research with prospective method. By using total enumeration technique, 30 post-operative patients with pituitary tumour admitted in the Neurosurgery units, Nehru Hospital, Post Graduate Institute of Medical Science and Research (PGIMER), Chandigarh. Ethical clearance obtained and consent was taken from participants. Tools used for data collection were interview schedule used on enrolment, Sino-nasal Outcome Test -22 (SNOTs-22) for Sino-nasal quality of life (QOL), Visual Function Scale-11 (VF-11) for Visual QOL and World Health Organization Quality of Life Scale (WHOQOL-BREF) for Health Related QOL, Cornell Dysthymia Rating Scale for Dysthymia and Apathy Elevation Scale for Apathy used at three months.

Results : In present study 46.7% patients were above 51 years and 70% females with mean age of 49.46 ± 13.6 years and 70% having non-functional pituitary tumours. The results show that after surgery for pituitary tumours patients were having low QOL, apathy and dysthymia.

Conclusion : This study shows that after surgery for pituitary tumours patient have to face psychological problems and ruination in quality of life and there is the need of proper guidance and counselling for the patients.

Keywords : Sino-nasal QOL; Visual QOL; Health Related QOL; Surgery; Pituitary Tumours

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Introduction

Pituitary tumours are the 4th most common intracranial tumour. These are neoplasms of the adenophysis and their annual incidence rate is about 4/100000. Most of the pituitary tumours are non-functional and benign.¹ Pituitary

tumours are mostly present in supra sellar and para sellar region. These tumours can be functional (prolactinomas, acromegaly and Cushing,s disease) or non-functional (hypopituitarism) in nature.² The main symptoms of pituitary tumour are headache, peripheral visual field loss, hyper or

hypopituitarism, fatigue, depression and weakness etc. The treatment objectives in patients with pituitary tumours are to eliminate effects of tumours, normalize hormonal and metabolic disturbance and to reacquire normal quality of life. Surgical removal is the definite treatment for pituitary tumours. There are two main approaches for surgical removal of pituitary tumour, transsphenoidal and transcranial. But after surgery there are different problems that patients have to face, which directly influence the quality of life of patients. Quality of life or health related quality of life (QOL) is the wellbeing of individual and based on individual feeling, functions of daily life and responds.³ Health related quality of life assessment is very important because it provide the strength to deal with the issues which have paramount importance in patients' everyday life.

Transsphenoidal (TSS) approach is considered the treatment of choice for removal of pituitary tumours.⁴ But patients with pituitary tumours after surgery experience various nasal and sinus problems like nasal congestion, nasal crusting and sinus pain etc.⁵ All these sinonasal complications lead to poor sinonasal QOL. Post-operative sinonasal complications like swelling around the eyes and sinusitis can also effect the visual function. More over because pituitary tumours are mostly present in sellar region, so due to increase in size of tumours visual complications are common in pre-operative period also.⁶ According to literature, after surgery 80% patients can have a normal visual function, but it can take a longer duration from 3 months to 3 years.⁷

Despite of physical complications the patients treated for pituitary tumours have to face psychosocial problems like depression, anxiety and psychosomatic complications.⁸ As we know that, some pituitary tumours are secretory and some are non-secretory and there can be decrease or increase in level of hormones respectively. The excessive or reduced hormonal activity may be associated with psychiatric symptoms.⁹ During post-operative period in case of functional pituitary tumours, there is abnormal decrease in level of hormones and non-functioning pituitary tumours (NFPT) patients are having persistent hypopituitarism.^{10,11} So, during post-operative period there is need of hydrocortisone hormonal therapy, which can lead to the different physical and psychological problems. Hormonal therapy may lead to different side effects like fatigue, nausea, vomiting, diarrhea, muscle pain, osteoporosis and psychological problems (depression, anxiety and apathy).¹² However, despite of optimal endocrine replacement strategies in post-operative period after surgery, hormonal

therapies like Growth hormone and ACTH may induce irreversible effects like apathy and mild degree of depression. All these physical and psychological problems directly affect the quality of life of patients.

The post-operative patients of pituitary tumours have to face different problems during post-operative period like sinonasal problems, visual problems and psychological problems (depression and apathy), but there is lack of evidence about this. So, the present study was conducted to highlight the post-operative problems, by assessing the quality of life and selected psychosocial variables in post-operative patients of pituitary tumours at 3 months.

Methodology

Research approach : This study was a quantitative research with prospective method.

Research design : A prospective study design was used to conduct the study.

Sampling technique : The sampling was done by using total enumeration technique.

Population : The study population was adult patients with pituitary tumour undergoing TSS.

Sample size : The total 30 patients, who had consented, were enrolled in the study. Known case of sino-nasal surgery, visual defect due to any other disorder and patient with psychiatric illness were excluded from the study. Informed written consent was taken from the patients. The patients were enrolled during pre-operative period and observed during hospital stay in post-operative period.

Setting of the study : Pituitary tumour undergoing TSS admitted in the Neurosurgery units, Nehru Hospital, Post Graduate Institute of Medical Science and Research, Chandigarh (PGIMER), Chandigarh.

Ethical approval : The study was conducted after Ethical approval from the Institute Ethics Committee with the reference number NK/5168/M.Sc/10.

Data collection : The tools used for data collection were- (I) Interview Schedule- it comprised of two parts (a) socio demographic profile (b) clinical profile. On enrolment patients were interviewed as per interview schedule and their socio demographic and clinical profiles were collected. Quality of life including Sino-nasal QOL, Visual QOL and Health Related QOL and selected psychosocial variables including apathy and dysthymia were assessed at 3months during follow up. (II) SNOT- 22 with 22 items was used to assess the sinonasal quality of life. The scores of each question range

from 0 to 5, according to the severity of the symptom, with 5 being the worst. The score of the test is the sum of the question scores. Higher scores represent a lower will be the sinonasal quality of life. [15] (III) Visual function scale was used to assess post-operative visual quality of life of patients with pituitary tumour. VFS was developed by Weston Eye Centre. This scale contains 11 points and items related to the daily activates. The scoring is from 0-4, greater the score lesser will be the visual quality. (IV) WHOQOL-BREF was used to assess the health related quality of life during follow up at 3 months. WHOQOL-BREF is currently scored in four domains: Domain 1: Physical health, Domain 2: Psychological, Domain 3: Social relations and Domain 4: Environment. In this, there is 5-point Likert interval scale designed and tested to reflect intensity, capacity, frequency and evaluation.

(V) Cornell Dysthymia Rating Scale (CDRS) was used to assess dysthymia at 3 month in patients with pituitary tumours after surgery. The CDRS is a 20-item clinician-rated scale developed specifically to assess severity of symptoms of dysthymia. Items are scored on a 0-4 basis, with a total score ranges of 0-80, where higher scores indicate greater severity of symptoms. (VI) Apathy Evaluation Scale (AES) was used to assess the apathy in adult post-operative patients of pituitary tumour. It is 18-point scale, scored on a 0-2 basis, with total score of 0-36, where higher score indicates less symptoms of apathy. [19] There were lots of follow up of two patients on 3months, one due to death of patient on 10th post-operative day and other due to economic reason. The data was analyzed by IBM SPSS (Statistical Package for Social Sciences) 20 versions by using descriptive and inferential statistics.

Results

Table 1 : Socio-Demographic and Clinical Profile of patient undergoing surgery for pituitary tumour

n=30

Socio-demographic and Clinical profile	f (%)
Age (years)	
Less than 25	3 (10)
25-50	13 (43.3)
51 and above	14 (46.7)
Gender	
Male	9(30.0)
Female	21(70.0)
Dietary habit	
Vegetarian	19 (63.3)
Non-vegetarian	11(36.7)

Percapita Income (Rs.)	
Less than 2500	7(23.3)
2501-5000	19(63.3)
>5000	4(13.3)
Types of tumour	
Functional	9(30.0)
Non functional	21(70.0)
Diabetic mellitus	4(13.3)
BMI (kg/m²)	
Underweight (Below 18.5)	2(8.0)
Normal weight (18.5-24.9)	14(56.0)
Overweight (Above 25)	0
Baseline urea (mg/dl)	
Less than 10	0
Normal urea (11-50)	17(56.7)
More than 50	13(43.3)
Baseline creatinine (mg/dl)	
Low creatinine (<0.5)	8(26.7)
Normal creatinine (0.5-1.2)	20(66.6)
High creatinine (>1.2)	2(6.7)
Baseline serum sodium (mEq/L)	
Hyponatremia (<135)	2(6.7)
Normal serum sodium (135-145)	28(93.3)
Hypernatremia (>145)	0

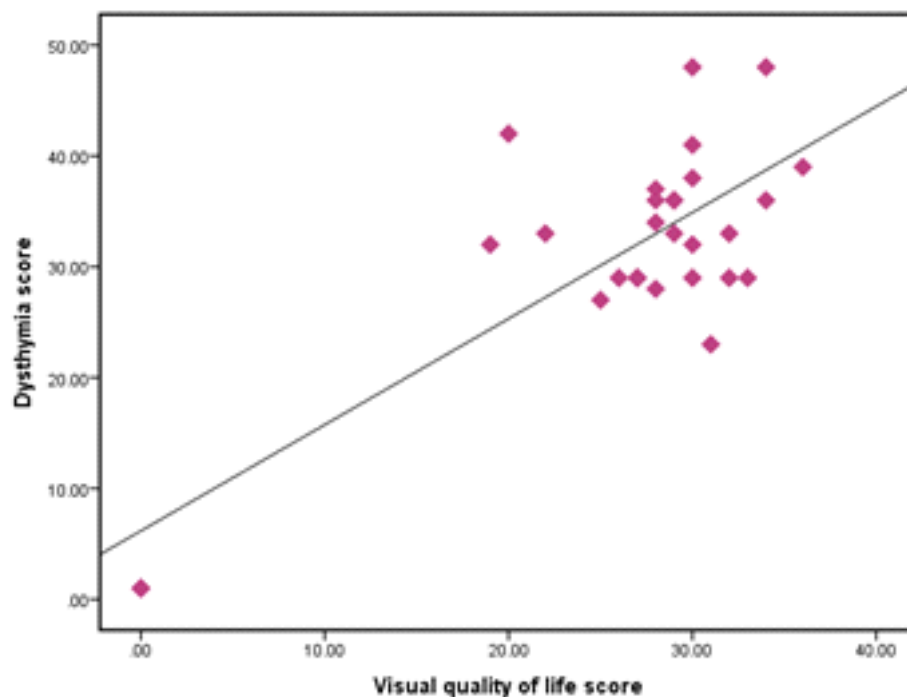
Table 2 : QOL (Sinonasal QOL, Visual QOL and Health related QOL) and selected psychological variables (Dysthymia and Apathy) scores at 3 month after surgery for pituitary tumours

n=28

QOL and psychological variables (Maximum possible score)	Mean $\pm$ SD
QOL	
Sinonasal quality of life (max. score 110)	41.60 $\pm$ 20.38
Visual quality of life (max. score 44)	29.18 $\pm$ 3.5
Health related quality of life (max. score 100)	76.5 $\pm$ 8.43
Psychological variables	
Dysthymia (max. score 76)	31.71 $\pm$ 10.48
Apathy (max. score 36)	24.32 $\pm$ 8.32
SD Standard deviation	

Table 3 : Correlation of QOL (Sinonasal QOL, Visual QOL and Health related QOL) and selected psychological variables (Dysthymia and Apathy) scores at 3 month after surgery for pituitary tumours**n=28**

Variables	Pearson correlation coefficient (r)	P value
Health related QOL and sinonasal QOL	-0.290	0.263
Health related QOL and visual QOL	0.785	<0.001*
Health related QOL and dysthymia	0.645	<0.001*
Health related QOL and apathy	0.893	<0.001*
Dysthymia and apathy	0.442	0.018*
Dysthymia and visual QOL	0.774	<0.001*
Apathy and visual QOL	0.662	<0.001*
Apathy and sinonasal QOL	-0.311	0.107
Sinonasal QOL and visual QOL	-0.128	0.515

***Significant at <0.05****Figure 1(a) : Correlation of Dysthymia and Visual quality of life score**

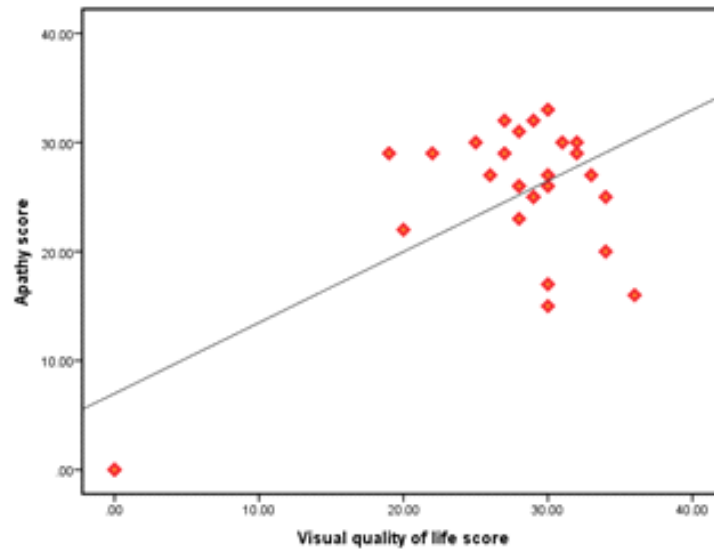


Figure 1(b) : Correlation Visual quality of life score and Apathy score

Figures 1(a) and (b) shows the significant recantations between visual QOL and dysthymia, apathy $p < 0.05$.

Table 4 : Correlation of Health related QOL with age, Sinonasal QOL, Visual QOL and selected psychological variables (Dysthymia and Apathy) scores at 3 month after surgery for pituitary tumours

n=28

Variables	Value of Pearson correlation coefficient (r) with Health related QOL and variables	p- value
Age	-0.151	0.443
Sinonasal QOL	-0.219	0.263
Visual QOL	0.785	<0.001*
Dysthymia	0.645	<0.001*
Apathy	0.893	<0.001*

*Significant at <0.05

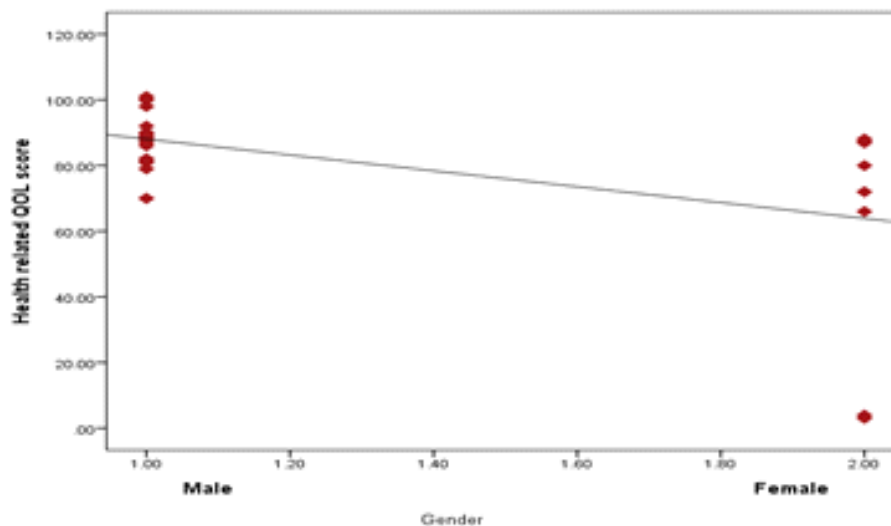


Figure 2(a) : Association of Health related QOL with Gender

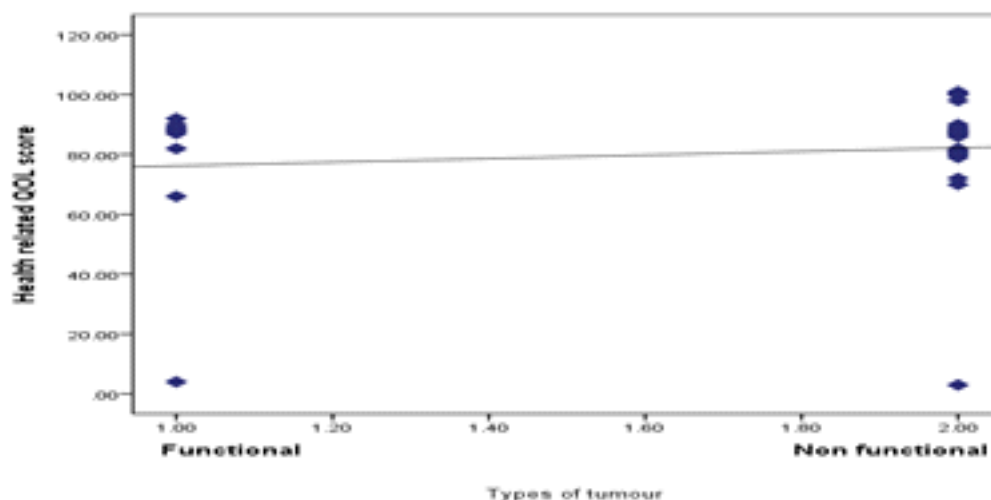


Figure 2(b) : Association of Health related QOL with Types of tumour

Discussion

A prospective study was conducted on 39 adult pituitary tumours patients reported that after TSS surgery there was significant impairment in sinonasal quality of life and SNOT-22 score varied from 23.4 preoperatively to 27.6 post operatively. In present study the sinonasal quality of life was assessed at 3 months and the results shows that mean score of SNOTs-22 was 41.60 ± 20.38 (highest score 110) and there is impairment in sino-nasal quality of life.

There is the need of proper protocols and guidelines for managing post-operative problems. And to have more evidence about complications that patients have to face after surgery, similar study can be conducted with more variables and long term follow up. This will help to have early diagnosis, proper management of complications and it ultimately leads to decrease in suffering of patients with pituitary tumours.

Conclusions

Findings of present study suggest that the patients of pituitary tumours have to face physical and psychological problems after surgery and there is need of early screening in order to prevent or reduce the complications. Proper explanation about disease, consequence of treatment and guidance can help to reduce the psychological problems and help to maintain quality of life. There is the need of more evidence related to this aspect. Because, evidences can help us to develop proper protocol and strategies for management of post operative complications. To effective patient outcomes, nurses must motivate and educate the

patient to have proper follow up and therapeutic adherence. Further studies can be done on same hypothesis with more variables.

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References

1. Pituitary Adenomas (Tumors) Description and Treatment Options [Internet]. [cited 2020 Jul 29]. Available from: <https://www.aans.org/>
2. The Epidemiology and Management of Pituitary Incidentalomas - Hormone Research 2007, Vol. 68, Suppl. 5 - Karger Publishers [Internet]. [cited 2020 Jul 15]. Available from: <https://www.karger.com/Article/Abstract/110624>
3. Crespo I, Santos A, Resmini E, Valassi E, Martínez-Momblán MA, Webb SM. Improving Quality of Life in Patients with Pituitary Tumours. *Eur Endocrinol*. 2013 Mar;9(1):32-6.
4. Transsphenoidal surgery for pituitary tumours | Archives of Disease in Childhood [Internet]. [cited 2020 Jul 15]. Available from: <https://adc.bmj.com/content/76/5/398>
5. Pledger CL, Elzoghby MA, Oldfield EH, Payne SC, Jane JA. Prospective comparison of sinonasal outcomes after microscopic sublabial or endoscopic endonasal transsphenoidal surgery for nonfunctioning pituitary adenomas. *Journal of Neurosurgery*. 2016 Aug 1;125(2):323-33.

6. Okamoto Y, Okamoto F, Yamada S, Honda M, Hiraoka T, Oshika T. Vision-Related Quality of Life after Transsphenoidal Surgery for Pituitary Adenoma. *Invest Ophthalmol Vis Sci*. 2010 Jul 1;51(7):3405-10.
7. Cooper O. Silent Corticotroph Adenomas. *Pituitary*. 2015 Apr;18(2):225-31.
8. Sonino N, Ruini C, Navarrini C, Ottolini F, Sirri L, Paoletta A, et al. Psychosocial impairment in patients treated for pituitary disease: a controlled study. *Clin Endocrinol (Oxf)*. 2007 Nov;67(5):719-26.
9. Altemus M. Hormone-specific psychiatric disorders: do they exist? *Arch Womens Ment Health*. 2010 Feb;13(1):25-6.
10. Wichers-Rother M, Hoven S, Kristof RA, Bliesener N, Stoffel-Wagner B. Non-functioning pituitary adenomas: endocrinological and clinical outcome after transsphenoidal and transcranial surgery. *Exp Clin Endocrinol Diabetes*. 2004 Jun;112(6):323-7.
11. Andela CD, Lobatto DJ, Pereira AM, van Furth WR, Biermasz NR. How non-functioning pituitary adenomas can affect health-related quality of life: a conceptual model and literature review. *Pituitary*. 2018;21(2):208-16.
12. Side effects of hormonal therapy - Canadian Cancer Society [Internet]. www.cancer.ca. [cited 2020 Jul 15]. Available from: <https://www.cancer.ca:443/en/cancer-information/diagnosis-and-treatment/chemotherapy-and-other-drug-therapies/hormonal-therapy/side-effects-of-hormonal-therapy/?region=on>

