

Life Adjustment after Surgical Treatment for Temporal Lobe Epilepsy

Priscila Camile Barioni Salgado, Fernando Cendes

Department of Neurology, University of Campinas – UNICAMP

ABSTRACT

Objective: The purpose of this study was to evaluate the patients' life adjustment after epilepsy surgery, through instruments of quality of life (QoL), anxiety, depression, preoperative expectations and postoperative life changing. **Methods:** Thirty-six adults who underwent temporal lobe epilepsy surgery were interviewed before surgery, and 6 and 12 months after surgery. **Results:** For all patients, epilepsy surgery gave rise to an evolving process of postoperative adjustment, what means that they were satisfied with surgery results, and that their expectations were reached. The improvement was seen in their QoL ($p=0.004$), anxiety ($p=0.019$) and depression ($p=0.001$), which was associated to their perception of positive life changing. The inexistence of depressive and anxiety symptoms and the good QoL after surgery predicted the perception of positive life changing. This study could predict a total of 56.5% of aspects involved in the perception of positive life changing after epilepsy surgery, what seems that other variables may be involved in this process. The patients' status before surgery (expectations, QoL, anxiety, depression and seizures frequency) did not predict the life satisfaction after surgery, what means that when patients evaluate their actual lives they do it looking for daily aspects and do not tend to compare to their lives before surgery. **Conclusion:** The findings of the present study have implications for the evaluation of life adjustment postsurgery, calling attention to measures of preoperative expectations, anxiety, depression and QoL. The strength of these contributions highlights the importance of registering the patients' feelings and opinions during the presurgical evaluation and may help the health providers to understand the aspects necessary to improve the patients' quality of life.

Key words: Quality of life, anxiety, depression, preoperative expectations, postoperative life-changing, epilepsy surgery.

RESUMO

Satisfação do paciente após tratamento cirúrgico de epilepsia do lobo temporal

Objetivo: Avaliar a satisfação de pacientes após a cirurgia para epilepsia, através de instrumentos de qualidade de vida (QV), ansiedade, depressão, expectativas pré-operatórias e mudança de vida após a cirurgia. **Métodos:** Trinta e seis adultos que se submeteram à cirurgia para epilepsia de lobo temporal foram entrevistados antes, e 6 e 12 meses após a cirurgia. **Resultados:** Para todos os pacientes, a cirurgia para epilepsia possibilitou um processo de re-ajustamento social; eles estavam satisfeitos com o resultado e suas expectativas foram supridas. A melhora foi notada na QV ($p=0.004$), ansiedade ($p=0.019$) e depressão ($p=0.001$), que foram variáveis associadas à percepção positiva de mudança de vida. A inexistência de sintomas de depressão e ansiedade e a melhora na QV foram preceptores de 56.5% das mudanças positivas no estilo de vida dos pacientes, o que aponta o envolvimento de outras variáveis neste processo de ajustamento pós-operatório. A condição do paciente antes da cirurgia (expectativas, QV, ansiedade, depressão e frequência de crises) não foi um fator prognóstico de satisfação com a vida após a cirurgia, o que sugere que os pacientes avaliam e estão satisfeitos com suas vidas atuais, procurando não levar em conta o que passaram antes da cirurgia. **Conclusão:** Este estudo é importante por registrar os sentimentos e opiniões dos pacientes durante o processo de intervenção cirúrgica, o que ajuda a equipe de saúde a entender aspectos necessários para a promoção de QV nestes pacientes.

Unitermos: Qualidade de vida, ansiedade, depressão, expectativas pré-operatórias, cirurgia da epilepsia.

INTRODUCTION

Assessment of long-term outcomes is essential in surgical treatment for epilepsy. However, little information exists about psychosocial outcomes after epilepsy surgery and even fewer studies include the patients' expectations before surgery and their perception of life satisfaction after surgery.¹⁷

For many patients, seizures remission is not as fundamental to psychosocial improvement as some other aspects, such as their life expectations.¹⁸⁻²⁰ From this point of view, Wilson et al.¹⁹ created a model of surgery prognostic where the perception of success depends of preoperative expectations (7%), postsurgery seizures frequency (33%) and postsurgery anxiety/depression (9%).

Later, Wilson et al.²¹ developed a new approach to characterizing psychosocial outcome after epilepsy surgery that allowed the identification of two major, distinct outcome groups. According to Wilson et al.,²¹ most of patients tend to report good outcomes, characterized by improved family dynamics, enhanced vocational and social functioning, and driving by two years postsurgery. In contrast, fewer patients perceive their outcomes as poor, reporting affective disturbance at twelve months and difficulties discarding sick role behaviors. Early anxiety serves as a marker of poor outcomes, while resolution of early anxiety and vocational change at twelve months postsurgery are indicators of good outcomes at two years.

In the last few years, many studies have emphasized the measurement of quality of life (QoL) pre and post epilepsy surgery and its correlation with anxiety and depression. The studies of Gilliam et al.,⁸ Johnson et al.⁹ and Boylan et al.³ reported the association between anxiety, depression and QoL.

Wrench et al.²² pointed that anxiety and depression do not come to remission in short follow-ups. Aydemir et al.¹ found that QoL after surgery was better than before surgery and independence seemed to be the most important concern and gain for patients with epilepsy.

Devinsky et al.⁶ concluded that depression and anxiety in patients with refractory epilepsy significantly improved after epilepsy surgery, especially in those who became seizure-free. On the other hand, Mattson et al.¹⁰ pointed that patients undergoing successful epilepsy surgery experienced only small decreases in anxiety.

Mikati et al.¹¹ concluded that intractable temporal lobe epilepsy was associated with marked impairments in QoL, however, three years after temporal lobectomy, QoL achieved levels similar to those of matched healthy individuals.

Cankurtaran et al.⁴ suggested that surgical intervention might be one of the causes of postoperative psychiatric disorders in patients with mesial temporal lobe epilepsy.

Most recently, Pintor et al.¹³ concluded that depression and anxiety disorders decreased significantly after temporal lobe surgery and that, contrary to Cankurtaran et al.,⁴ surgery does not worsen the patients' global psychopathological status.

The purpose of this study was to evaluate the patients' life adjustment after epilepsy surgery, through instruments of QoL, anxiety, depression, preoperative expectations and postoperative life changing. This was a prospective longitudinal study that evaluated psychosocial adjustment in the basis of the patients' perspective of their physical health, psychological and social status.

METHODS

Consecutive adults from the outpatient clinic of epilepsy at the University Hospital of Campinas (UNICAMP) were interviewed as they fulfilled the criteria to undergo temporal lobe epilepsy surgery. The interview consisted in the application of the instruments described bellow. At this first moment, 85 patients were interviewed. After about 1.5 year, 36 patients were operated and continued in the study; being evaluated six and twelve months after surgery. The others (n=49), who did not undergo epilepsy surgery during this period, were excluded from this study.

Instruments

31-Item quality of life in epilepsy (QOLIE-31):⁵ 31 items of QoL scoring from 0 to 100. Higher scores indicate better QoL.

Trait Form of the Spielberger State-Trait Anxiety Inventory (STAI) (16): 20 items scoring from 1 to 4. Total score ranges from 20 to 80. Scores higher than 52 for men and 55 for women indicate anxiety trait.

Beck Depression Inventory (BDI) (2): 21 items scoring from 0 to 3. Total score ranges from 21 to 63. Scores higher than 10 indicate depressive symptoms.

Presurgery expectations questionnaire:¹⁴ 19 items questionnaire scoring from 0 to 100. Higher scores indicate more presurgery expectations.

Postsurgery life changing questionnaire:¹⁴ 26 items questionnaire scoring from 0 to 100. Higher scores indicate more positive life changing after surgery.

Statistical analysis

The Sign-test was used for categorical variables. Paired t-test was used to compare scores between groups. Wilcoxon test was used to compare answers between the period before and after epilepsy surgery. Linear regression analysis was used to examine the relationship between variables. The significance used was 5% ($p < 0.05$).

RESULTS

1. *Descriptive analysis of the subjects:* The descriptive analysis was divided in three different phases, according

to the patients' interview: presurgery, postsurgery 1 and postsurgery 2 (Table 1). The subjects' demographic characteristics (age, school level, work and marital state) did not change between periods ($p>0.05$). There was an important difference at the seizures frequency ($p=0.003$) before and after surgery.

Patients' QoL had an important improvement after surgery ($p=0.001$). There was association between the improvement in QoL ($p=0.004$), anxiety ($p=0.019$), depression ($p=0.001$) and the perception of positive life changing six months after surgery. After 12 months, the association was only found in the symptoms of depression ($p=0.012$), because the other aspects had a little deterioration, although not significant. Table 2 shows the questionnaires' mean scores before and after epilepsy surgery.

The frequency of anxiety decreased significantly ($p=0.002$) from 33.3% before surgery to 6.4% in the first and second follow-up.

The frequency of depression decreased from 41.7% before surgery to 22.6% in the first follow-up and 12.9% in the second. Symptoms of depression were significantly lower only when comparing the presurgery period to the second follow-up ($p=0.014$).

Patients with symptoms of anxiety and depression after surgery had lower scores of QoL and less satisfaction with life postsurgery ($p<0.0001$) than the ones who had no anxiety/depression symptoms postsurgery. No association was found between presurgery psychiatric disorders and postsurgery psychiatric disorders, that is, the presence of psychiatric disorders after surgery was not related to presurgical psychiatric morbidity.

Patients were unanimous when they reported some expectations of life after surgery. All of them agreed that they would like to take less anti-epileptic drugs (AEDs), work, be happy and be less nervous.

The patients' preoperative expectations were satisfied in both follow-ups ($p<0.01$), what may be seen in the level of positive life-changing. Despite the fact that patients reported more positive life changes in the second follow-up, they were not significant ($p=0.143$) when compared to the first follow-up.

However, when comparing the periods before and after surgery, it was noted that the significant changes in the patients' lives occurred only after 12 months ($p=0.001$), indicating the necessity of longer follow-ups to better life adjustments. Only after this period the patients reported they were feeling normal, as anybody else ($p=0.039$), accepted by their families ($p=0.021$), and able to take care of their house and family ($p=0.017$).

After surgery, 34 patients (94.73%) considered surgery a success, one said it was a failure (2.63%) and another one was still in doubt (2.63%). Most patients were completely free of seizures (69.23%) and the others had a reduction of seizures frequency in at least 75%. The seizures intensity were the same for two patients (7.69%) and less severe for six (23.07%) of them. All patients (100%) said their life changed after surgery.

Linear regression analysis demonstrated that the preoperative expectations did not depend on any of the variables studied: age, school level, work, marital state, epilepsy duration, seizure frequency, QoL, anxiety and depression.

Table 1. Demographic and clinical characteristics of subjects

N=36	Presurgery	Postsurgery 1	Postsurgery 2
Age	M=32; SD=9.1	M=34.33; SD=9.86	M=34.41; SD=9.44
School level	17 (47.2%) Elementary school 12 (33.3%) High school 7 (19.4%) Started college	17 (47.2%) Elementary school 12 (33.3%) High school 7 (19.4%) Started college	17 (47.2%) Elementary school 12 (33.3%) High school 7 (19.4%) Started college
Work	12 (33.3%) Employed 24 (66.6%) Unemployed	15 (41.6%) Employed 21 (58.3%) Unemployed	13 (36.1%) Employed 23 (63.9%) Unemployed
Marital state	9 (25%) Married 27 (75%) Single	9 (25%) Married 27 (75%) Single	10 (27.8%) Married 26 (72.2%) Single
Seizures frequency	1 to 30 seizures/month M=10.8; SD=10.9	0 to 30 seizures/month M=2.1; SD=7.1	0 to 30 seizures/month M=1.8; SD=7.1
Epilepsy duration	4 to 48 years M=23.13; SD=11.89	6 to 50 years M=24.37; SD=11.27	6 to 50 years M=25.13; SD=11.74

Table 2. Questionnaires' scores before and after epilepsy surgery.

SCORES	QOLIE-31	STAI	BDI	Expectations	Life-changing
Presurgery	63.7 (SD=2.4)	45.9 (SD=13.4)	9.6 (SD=9.4)	36.1 (SD=23)	–
Postsurgery 1	84.3 (SD=1.7)	37.1 (SD=9.6)	5.8 (SD=7.4)	–	51.6 (SD=22.4)
Postsurgery 2	82.7 (SD=1.7)	37.3 (SD=8.9)	4.2 (SD=6.5)	–	58.8 (SD=20.2)

Depression, anxiety and QoL postsurgery significantly influenced the perception of positive life changing after surgery. These three variables together can explain 56.5% of the variance of the perception of positive life changing after surgery (Table 3). The expectations, anxiety, depression, QoL and seizures frequency before surgery did not explain the perception of positive life changing after surgery.

Table 3. Linear regression analysis of perception of positive life changing after surgery

	Square Multiple	F-ratio	p-value
Depression	32.3%	15.313	0.001
Anxiety	11.6%	4.407	0.046
QoL	12.6%	4.756	0.039

DISCUSSION

In this study we evaluated life adjustment through the basis of the patients' expectations before surgery and anxiety, depression and QoL pre and postsurgery.

Presurgery expectations is an individual construct and the variables studied (age, school level, work, marital state, epilepsy duration, seizure frequency, QoL, anxiety and depression) could not predict it. In other words, each subject has his expectations according to aspects other than the ones studied here.

It does not matter how good or bad are their QoL, or if they are anxious or depressed; the patients presurgery expectations tend to be the same. They want to work, take less AEDs, and be less worried and happier. They want to be as anybody else is and do what anybody else does.

For all patients, epilepsy surgery gave rise to an evolving process of postoperative adjustment, what means that they were satisfied with surgery results, and that their expectations were reached. In agreement with other studies,^{1,6,13} the improvement was seen in their QoL, anxiety and depression, which were associated to their perception of positive life changing.

We still do not know if after epilepsy surgery the improvement in QoL, anxiety and depression lead to the perception of positive life changing or the sequence is the other way round: the patients start to see every little thing in life as good and this satisfaction with life leads to the improvement in their QoL, anxiety and depression.

Despite of the sequence of events, this study revealed that the absence of depressive (32.3%) and anxious (11.6%) symptoms and presence of good QoL (12.6%) after surgery predicted the perception of positive life changing. This study could predict a total of 56.5% of aspects involved

in the perception of positive life changing after epilepsy surgery, what seems that other variables like self-esteem, locus of control and self-efficacy, may be involved in this process.

The patients' status before surgery (QoL, anxiety, depression and seizures frequency) did not predict the life satisfaction after that, meaning that when patients evaluate their actual lives they do it looking for daily aspects and do not tend to compare to their lives before surgery.

Other aspect may be the fact that they may "lose" this memory of bad things in life, what turns difficult the association between postsurgery life satisfaction and life status before surgery. They are happy, satisfied and want to forget epilepsy and start a new life.

Because there was a significant decrease in seizure frequency ($p < 0.001$) after surgery and almost all of them ($n = 34$; 94.73%) were satisfied with surgery results, we could not know if this aspect could predict the patients' satisfaction after epilepsy surgery.

Depression was significantly better only 12 months after surgery, suggesting that some aspects of life adjustment take a longer time to improve.²² Anxiety and QoL worsened a little in this second follow-up, but it was not significant.

Whereas the improvement in some areas may sometimes take a longer time to occur, other aspects improve quickly, but may deteriorate with time. It is a two-way road: the patients might feel difficult to change and adjust life in a short term, because they learned and they are used to live, think and socialize in a certain way.²¹ On the other hand, patients might feel miraculously better just after treatment, but after a longer period, they face reality and understand that epilepsy surgery was responsible for removing seizures, but other problems may persist and must be dealt with.

This study showed that epilepsy surgery makes possible to improve patients' QoL, anxiety, depression and seizures frequency. Marriage, work and school status did not have significant changes in the short period studied.

Just as Pintor et al.,¹³ we revealed the improvement of levels of anxiety and depression after epilepsy surgery. In accordance to previous studies,^{7,9,12,15} the prevalence of anxiety and depression were 33.3% and 41.66% respectively before surgery, and decreased significantly after epilepsy surgery.

The findings of the present study have implications for the evaluation of life adjustment postsurgery, calling attention to measures of anxiety, depression and QoL. The strength of these contributions highlights the importance of registering the patients' feelings and opinions during the preoperative investigation and may help the health providers to understand the necessary aspects to improve the patients' quality of life.

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Endereço para correspondência:

Fernando Cendes
 Department of Neurology – FCM – UNICAMP
 Cidade Universitária
 CEP 13083-970, Campinas, SP, Brazil
 Tel.: (55-19) 3521-9217 – Fax: (55-19) 3289-1818
 e-mail: fcendes@unicamp.br