PSYCHOLOGICAL ASPECTS OF PITUITARY ADENOMA

Josip Razum
University of Zagreb, Faculty of Humanities and Social Sciences, Department of Psychology

Abstract

The patients suffering from pituitary adenoma are faced with not only physical and physiological, but also psychological disturbances, some of which persist even long after the conventional treatment is finished and the disease is biochemically controlled. The patients with long term cure of Cushing’s disease exhibit some changes in personality (heightened anxiety and lowered externalizing behaviors), mood and anxiety disorders, as well as cognitive impairments. These changes combined with fatigue and increased obesity, lead to impairments of social and role functioning and a diminished satisfaction with life. The patients with biochemically controlled acromegaly suffer from similar changes in personality, mood disorders, cognitive detriments and a diminished quality of life (QoL), which is characterized by worsened body image. The patients with treated prolactinoma exhibit heightened anxiety and depression, and the patients with non-functionary pituitary adenoma face some cognitive detriments. Additional factors worth considering are coping strategies and illness perceptions, which can also influence the QoL of patients. It is important to adequately diagnose and treat psychological disturbances the patients face, as conventional treatment of the disease alone is not enough to deal with them. Additionally, it is meaningful to consider the quality of life and well-being of the patients. Psychosocial interventions, such as educations, can be useful in improving the QoL.

KEYWORDS: acromegaly, anxiety, coping strategies, Cushing’s disease, depression, non-functionary pituitary adenoma, pituitary adenoma, prolactinoma, quality of life

INTRODUCTION

When assessing the difficulties the patients with pituitary adenoma face, clinicians have traditionally focused on the degree of hormone excess or deficiency, the size of tumor, the severity of symptoms specific for the disease and the endocrine and anatomic results of the treatment. There was a tendency to rely on “real hard data” and to omit some of the, traditionally viewed as less reliable or important information, such as cognitive or other impairments and well-being. However, the different pituitary tumors can and will affect various psychological functions; causing cognitive deficits, disturbances in psychosocial functioning and self-perceptions, mood disorders, and, consequently, having an influence on the overall quality of life. These effects will persist even after the conventional (e.g. surgical) treatment is finished and the disease is biochemically controlled. Therefore, it is important to consider them, as they can help clinicians and researchers not only to gain a better understanding of the impact that the disease itself and the treatment have on the individuals’ functioning, but also to develop more efficient and holistic treatments, thus enabling the patient to recover in the best possible way in the long run. In this short review, I will focus on the psychological factors associated with Cushing’s disease, prolactinoma and non-functional pituitary adenoma, as well as some general factors. These medical conditions are usually suggested in the literature as the ones that arise from pituitary adenomas and they gave impetus to most of research regarding the aspects of psychological functioning that are influenced by this type of tumor.

CUSHING’S DISEASE

Stressful life events are an important psychological factor in the etiology of the Cushing’s disease (Cd). Patients with Cd, when compared to healthy controls, had significantly more stressful life events in the year preceding the onset of the disease. Furthermore, the events were independent of the comorbid major depression some patients had, i.e. there were no differences in the number of the events between patients with and without depression, which is important considering the known etiological role of life events in the onset of depression. It seems, though, that Cd is the only condition arising from pituitary tumors that could be connected to stressful life events.

The hypercortisolism, which is the main symptom of the disease, causes the changes in the personality and induces mood disorders that are not completely reversible with the correction of the hypercortisolemic state. In 2013, a study was conducted on patients 7 years after the biochemical remission of their symptoms. They reported significantly less novelty seeking behavior and were less extroverted when compared to the mentally healthy controls. Likewise,
the patients reported heightened: shyness towards strangers, harm avoidance and neuroticism; showing a personality profile consisting of high anxiety combined with low externalizing behavior. Studies showed that 54–81% of the patients with Cushing's disease meet the diagnostic criteria either for major depressive disorder or generalized anxiety disorder and that, despite remission, many patients had residual symptoms in the prospective year. In a prospective study by Dorn et al., the overall proportion of patients in the sample that met the diagnostic criteria for a psychiatric disorder (mostly depression or anxiety disorders) decreased to 54% at 3 months following the remission, 30% at 6 months and 24% at 12 months. In addition, a study by Tiemensma et al.13 showed that, following at least a year long remission, 26% of the patients still exhibited a clinically significant depression and 20% had elevated anxiety, as measured by Hospital Anxiety and Depression Scale (HADS). It seems therefore that some patients still show clinically significant levels of depression and anxiety, although the hypercortisolism state was successfully treated a year or more ago. Some authors attribute this to irreversible damage the previous cortisol excess has inflicted upon the central nervous system, although the exact cause is unknown and perhaps some conventional methods in treating mood disorders (e.g. psychotherapy, pharmacotherapy) could help the patients to recover fully in the long term.

The patients with Cushing's syndrome also show cognitive impairments in areas such as attention, concentration, reasoning and memory, some of which persist 12 months after the surgical treatment is carried out. However, it is not clear whether cognitive functions need a longer time to recover and the prospective studies also had a very small number of participants. Therefore, more research is needed in order to reach better conclusions. It is clear that the daily functioning of some patients is compromised and their return to work could be delayed and their productivity lowered, so neuropsychological evaluation and treatment should be provided to those exhibiting difficulties, especially if they are present during the phase of recovery.

A study examining the quality of life in CD shows that the patients that were in remission from 9 months to 3 years, exhibited diminished well-being, heightened stress, and rated their physical functioning, role functioning (their ability to function in different life roles, e.g. worker or family member) and their health as lower than the healthy controls. Heald et al. found that the patients with treated CD reported being more depressed, anxious, fatigued, and with poorer physical health and environmental and social adjustment than did patients with other pituitary tumors. The low reported quality of life could be attributed to many areas that chronic exposure to hypercortisolism affects, causing fatigue and weakness, emotional and cognitive problems and increased obesity, which all lead to social and role-functioning impairments, as well as diminished general satisfaction with life in many areas. As previously mentioned, a lot of these effects persist despite successful medical treatment and clinical remission, so it is important to provide patients with long term psychological and/or psychiatric follow-up and assistance.

ACROMEGALY

In a study conducted by Tiemensma et al., it was shown that patients with long term cure of acromegaly (mean duration of remission= 13 years) exhibited higher depression and anxiety than the healthy controls, as well as higher apathy and irritability. In an another study, patients with a mean time of 10 years after surgery have shown a 12 month and a lifetime affective disorder prevalence which were higher than in both healthy controls, as well as controls with current chronic conditions. The anxiety disorders did not appear more often in acromegaly patients, compared to both control groups. It seems therefore that just a smaller portion of increased affective disorder incidence in acromegaly patients is attributable to difficulties in dealing with a chronic disease and a much larger portion is connected with the growth hormone (GH) and the insulin-like growth factor 1 (IGF-1) excess, which probably can have long term and potentially irreversible effects even long after the treatment is carried out. It is also interesting to note that radiotherapy, which was applied on some patients, was found to be a predictor of an increased risk for mental disorders, but this finding warrants further research due to small subsample size. Regarding personality, patients with acromegaly show more neuroticism and harm avoidance and less novelty-seeking behavior when compared to normal controls, as well as lower impulsiveness when contrasted to patients with non-functionary pituitary adenoma. The duration of these effects and their plasticity in the course of therapy was not clear, because the sample consisted of treated and untreated patients combined.

The cognitive detriments in acromegaly, as reported by Sievers et al., consist of a global reduction in functional brain capacity (information processing speed, alertness) and specific deficits (memory, divided attention). It is important to note that no associations were found between the patient's performance and the current course of the disease or other psychiatric or physical comorbidities, so cognitive deficits could represent a separate entity, that can cause difficulties in patient's work life and usual activities, and should be tested for and treated. However, in a study by Tiemensma et al. the patients that were in remission for a longer period of time had a smaller to non-existent amount of cognitive deficits, so more research is certainly needed to reach definitive conclusions.

Patients with acromegaly suffer from many distressing symptoms; including changes in facial and acral appearance, fatigue, joint pain, headache and excessive perspiration, as well as hypertension, diabetes mellitus, sexual dysfunction and obstructive sleep apnea in some cases, that have large detrimental effects on their quality of life. The consequent worsening of body image and self-esteem is especially pronounced in this context. According to a study by Sardella et al., the quality of life (QoL) does improve in the course of disease control and therapy, but only in the short term (i.e. the first six months). In the longer period of 24 months, the quality of life could not be related to improvements of acromegaly, probably because other factors such as the need for chronic injections (which lowers the QoL), gender (women experience larger detrimental effects of the changes in ap-
PEARANCE ON QoL), comorbidities, negative illness perceptions and social and family events also play a role in the well-being of the patients. An additional problem to be considered is a long delay between the onset of the disease and the diagnosis (mean time=6-10 years), which happens because the symptoms are often hard to recognize and is associated with bigger impairments in quality of life. A new prospective study by Vandeva et al., shows that surgical treatment isn’t superior to medical or other treatment modalities regarding the quality of life in patients, stressing complex nature of QoL in acromegaly and emphasizing the need for individual treatment assessment. These findings suggest that it is important to include psychological treatments, especially from a long-term perspective, as conventional treatments although they will control the disease, can improve the quality of life only up to a certain point.

PROLACTIONOMA

The psychological data on prolactionoma is scarce, as most of the studies focus on the biochemical aspect of this condition. A 2007 study carried out on female patients with microprolactinoma that were in treatment for several years shows that they report reduced well-being when compared to healthy controls; mostly due to reduced motivation, fatigue, reduced emotional reaction and heightened depression and anxiety. It seems that the patients with prolactinoma usually fare better than the ones with Cushing’s disease or acromegaly in terms of QoL, as they are not affected with such distressing and long term physical symptoms and changes in appearance. However, they could also benefit from a psychological or psychiatric treatment which would help alleviate heightened anxiety and depression.

NON-FUNCTIONAL PITUITARY ADENOMA (NFPA)

A study from 2011 by Brummelman et al. showed that patients with treated non-functional pituitary adenoma (remission = at least 6 months) scored lower on measures of verbal memory and executive functioning than healthy controls. Applied radiotherapy was not associated here with larger cognitive detriments than other treatment modalities. Another study by Yedinak and Fleseriu suggests that treated patients with NFPA perceive cognitive dysfunctions in the fields of cognitive flexibility, memory recall and verbal recall. The etiology of these dysfunctions is still unknown, and it is hypothesized that they reflect some structural changes brought upon previously by the tumor. Their possible improvement over time due to brain’s plasticity is also to be investigated.

Regarding the quality of life, it seems that it gradually increases in the course of treatment and reaches the levels that are just a little under the average of the healthy population, as it was calculated by Andela et al. in a recent review. It follows therefore that the NFPA patients have the least impaired quality of life in the long term, when compared to Cushing’s disease, acromegaly and prolactinoma patients. It could be so because they have not been exposed to prolonged excessive hormone secretion and, as a result, face less severe impairments. However, a disease-specific quality of life questionnaire was not yet developed for NFPA, so the impact of the disease on QoL could be underestimated.

GENERAL FACTORS: ILLNESS PERCEPTION AND COPING STRATEGIES

In a study by Tiemensma et al., it was found that pituitary adenoma patients report less active coping, more avoidance coping and less social support seeking when compared to a sample from a healthy population. However, they seem to cope with their illness more effectively than patients with chronic pain or patients seeking psychological service in primary care. On the other hand, patients with both acromegaly and Cushing’s disease had more negative illness perceptions when compared to patients with patients with acute chronic pain and vestibular schwannoma and they also had more illness-related complaints. These illness perceptions then in turn correlated strongly and negatively with quality of life. It is also interesting to note that the CD and acromegaly patients in remission perceive their illness as chronic, experience a lack of personal control, and they are less likely to seek medical care. Illness perceptions and coping strategies could be, as suggested by Tiemensma et al., used as a basis for creating psychosocial interventions which would be used in addition to medical treatment. One such intervention, a 26 week education for patients with neuroendocrine tumors, was already designed and evaluated, and it succeed in improving self-efficacy, decreasing perceived stress and improving quality of life in patients.

CONCLUSION

In conclusion, pituitary tumors cause cognitive impairments, mood disorders and worsened quality of life, all of which are effects that persist to some degree even in the course of the long term remission of the disease. These effects should be adequately diagnosed and individual psychological and psychiatric help should be provided in order to tackle with them and improve the individual quality of life. In a similar vein, negative illness perceptions and inadequate coping strategies, which also influence the quality of life in the long term, could be used as a basis for interventions and educations.
References:


PSIHOLOŠKI ASPEKTI ADENOMA HIPOFIZE
Sažetak

Pacijenti koji boluju od tumora hipofize se, osim sa fizičkim i fiziološkim, suočavaju i sa smetnjama u psihološkom funkcioniranju. Te smetnje često traju i nakon što završi konvencionalni tretman bolesti te ona prijeđe u stadij u kojem je biokemijski kontrolirana. Pacijenti izliječeni od Cushingove bolesti doživljavaju promjene u ličnosti (povišena anksioznost i smanjena količina eksternaliziranih ponašanja) i poteškoće u kognitivnom funkcioniranju, a kod njih je zabilježena i povećana incidencija anksioznih poremećaja i poremećaja raspoloženja. Te promjene u kombinaciji s umorom i pretlosti dovode do poteškoća u društvenom funkcioniranju i životnim ulogama te smanjenog zadovoljstva sa životom. Pacijenti s biokemijski kontroliranom akromegaliom se suočavaju sa sličnim promjenama u ličnosti, poteškoćama u kognitivnom funkcioniranju, povećanom incidencijom poremećaja raspoloženja i smanjenom kvalitetom života, pri čemu se ističe pogoršana slika vlastitog tijela. Pacijenti s liječenim prolaktinom pokazuju povišenu anksioznost i depresivnost, a pacijenti s nefunkcionalnim adenomima hipofize se suočavaju s određenim poremećajima u kognitivnom funkcioniranju. Dodatni zanimljivi psihološki faktori su pacijentove strategije suočavanja i percepcija bolesti, koji također utječu na kvalitet života. Važno je adekvatno dijagnosticirati i tretirati poremećaje u psihološkom funkcioniranju s kojima se suočavaju pacijenti, budući da konvencionalni tretmani bolesti nisu dovoljni da ih se ukloni. Također, važno je obratiti pažnju na kvalitet života i psihološku dobrobit pacijenata. Psihosocijalne intervencije, poput edukacija, mogu biti korisne u poboljšanju kvalitete života.

KLJUČNE Riječi: adenom hipofize, akromegali, anksioznost, Cushingova bolest, depresija, kvaliteta života, nefunkcionalni adenom hipofize, prolaktinom, strategije suočavanja

Received October 18, 2016.
Accepted November 28, 2016.