

Brain Tumour and Depression

Journal Articles:

Armstrong, C., Goldstein, B., Cohen, B., Mi – Yeung, J. & Tallant, E. (2002) Clinical predictors of depression in patients with low - grade brain tumours: consideration of a neurologic versus psychogenic model. *Journal of Clinical Psychology in Medical Settings*. Vol 9, no. 2. p. 97 – 107.

Arnold, S., Forman, L., Brigidi, B., Carter, K., Schweitzer, H., Quinn, H. et al. (2008) Evaluation and characterization of generalized anxiety and depression in patients with primary brain tumours. *Journal of Neuro – Oncology*, 10, 171 – 181.

Barrera, M., Schulte, F., & Spiegler, B. (2008) Factors influencing depressive symptoms of children treated for a brain tumour. *Journal of Psychosocial Oncology*. Vol 26 (1). P. 1- 16

Fox, S., Lyon, D. & Farace, E. (2007) Symptom clusters in patients with high – grade glioma. *Journal of Clinical Scholarship*, 39:1, 61 – 67.

Keir, S., Calhoun – Egan, R., Swartz, J., Saleh, O. & Friedman, H. (2008) Screening for distress in patients with brain cancer using the NCCN's rapid screening measure. *Journal of Psycho - Oncology*, 17, 621 – 625.

Litofsky, N., Scott, M., Farace, E., Anderson, F., Meyer, C. & Huang, W. (2004) Depression in patients with high - grade glioma: results of the Glioma Outcomes Project. *Journal of Neurosurgery*, Vol 54, Issue 2, p. 358 - 367.

Mainio, A., Hakko, H., Niemela, A., Koivukangas, J & Rasanen, P. (2006) Gender differences in relation to depression and quality of life among patients with a primary brain tumor. *Journal of European Psychiatry*, Vol 21 (3) p.194 – 199.

Mainio, A., Tuunanen, S., Hakko, H., Niemela, A., Koivukangas, J. & Rasanen, P. (2006) Decreased quality of life and depression as predictors for shorter survival among brain tumor patients with low – grade gliomas: a follow up from 1990 to 2003. *Journal of European Archives of Psychiatry and Clinical Neurosciences*. 256: 516 - 521.

Pelletier, G., Verhoef, M., Khatri, N. & Hagan, N. (2002) Quality of life in brain tumor patients: the relative contributions of fatigue, emotional distress, and existential issues. *Journal of Neuro - Oncology*, 57, 41 – 49.

Wellisch, D., Kaleita, T., Freeman, D., Cloughesy, T. & Goldman, J. (2002) Predicting major depression in brain tumor patients. *Journal of Psycho – Oncology*, 11, 230 – 238.

Summarized Journal Articles

Armstrong, C., Goldstein, B., Cohen, B., Mi – Yeung, J. & Tallant, E. (2002) Clinical predictors of depression in patients with low - grade brain tumours: consideration of a neurologic versus psychogenic model. *Journal of Clinical Psychology in Medical Settings*. Vol 9, no. 2. p. 97 – 107.

The aim of the study was to examine quality of life issues in patients with brain tumours. Regression was used to examine the clinical factors associated with heightened levels of depression. 57 adults with low - grade brain tumours were chosen after surgery but before commencing chemotherapy and radiotherapy. A neurological model comprised of tumour characteristics and treatment was compared with a psychogenic model comprised of both psychosocial and psychodynamic variables. Demographic variables and level of fatigue were also included. A model consisting primarily of fatigue (also clinically elevated) and secondarily of tumour location and aggressiveness of surgical treatment accounted for 33% of the depression score. In a small group, at a later follow up when patient depression was clinically elevated (4 - 6 years after baseline) fatigue, female sex, cognitive dysfunction, increased family support, and increased report of physical symptoms were associated with depression. The sample was small, but the study showed that depression in brain tumour patient develops over time and results from a combination of neurological and psychosocial problems that ensue initial treatments. The authors suggested that treatment of these collateral problems may reduce the complications from depression.

Arnold, S., Forman, L., Brigidi, B., Carter, K., Schweitzer, H., Quinn, H. et al. (2008) Evaluation and characterization of generalized anxiety and depression in patients with primary brain tumours. *Journal of Neuro – Oncology*, 10, 171 – 181.

This article's aim was to determine the clinical and socio-demographic factors associated with major neuropsychiatric illnesses among brain tumour patients. 365 adult neuro-oncology patients were given a modified version of the 'Brief Patient Health Questionnaire' and a demographic data form to complete. Responses were analyzed to assess for associations between demographic and clinical variables, and symptoms consistent with diagnoses of generalized anxiety and / or depression. The study found, "a 60% greater prevalence of generalized anxiety disorder and a more than two-fold higher prevalence of depression than reported in at least one other study" (p.175). The five key variables associated with the development of generalized anxiety disorder and depression in primary brain tumour patients were, gender, marital status, level of education, tumour grade and past / current medical illness. The study revealed the importance of studying the severity and duration of anxiety and depression symptoms in a longitudinal design. The study also revealed that symptoms of depression and or anxiety may not be revealed in the clinical setting through simple physician interaction. It was suggested that brain tumour patients required a comprehensive approach that provided a method for assessing and evaluating patients' psychological, behavioral, and social concerns. This article was significant in highlighting the need for more research and awareness of the prevalence of depression and anxiety in brain tumour patients.

Barrera, M., Schulte, F., & Spiegler, B. (2008) Factors influencing depressive symptoms of children treated for a brain tumour. *Journal of Psychosocial Oncology*. Vol 26 (1). p. 1 – 16.

The objective of the study was to examine depressive symptoms in children treated for a brain tumour and related clinical, demographic and personal factors. 54 children with brain tumours participated in the study. There were 32 males and 22 females aged between 8.2 and 18.3 years. The average age was 13.67 years. The majority were diagnosed with Astrocytoma or Medulloblastoma. The mean age of diagnosis was 6.04 years. 2.1% of children underwent surgery, 42.3% of children received cranial radiotherapy and 31.7% had chemotherapy. Symptoms of depression were measured by the Children's Depression Inventory (CDI; Kovacs, 1992), a 27 – item inventory for children aged 6 to 17 years of age. Depressive symptoms were also assessed using the Child Behavior Checklist (CBCL; Achenbach, 1991) and the Youth Self – Report (YSR; Achenbach, 1991). The results of the study revealed that gender, social skills, and self worth played an important role in the depressive symptoms of paediatric brain tumour children. The findings also offered important implications for clinical practice. “The psychosocial assessment of childhood brain tumour survivors must be multifaceted including consideration of treatment (CRT) , personal (gender, perception of self – worth, level of social skills), and other critical developmental, familial, and environmental factors. This comprehensive assessment would identify those survivors at risk of psychosocial problems and would be the basis for planning psychosocial health promotion interventions for this population” p.13.

Fox, S., Lyon, D. & Farace, E. (2007) Symptom clusters in patients with high – grade glioma. *Journal of Clinical Scholarship*, 39:1, 61 – 67.

The purpose of this study was to describe the co-occurring symptoms (depression, fatigue, pain, sleep disturbance, and cognitive impairment), quality of life (QoL), and functional status in patients with high grade glioma. A correlational, descriptive study of 73 patients with high-grade glioma took place. Two symptom cluster models were examined. Four co-occurring symptoms were significantly correlated with each other and explained 29% of the variance in QoL: depression, fatigue, sleep disturbance, and cognitive impairment. Depression, fatigue, sleep disturbance, cognitive impairment, and pain were significantly correlated with each other and explained 62% of the variance in functional status. The conclusions drawn from the study were: the relationships of the symptoms examined in the study and their relationships with QoL and functional status met the criteria for defining a symptom cluster. The difference in the models of QoL and functional status indicated that symptom clusters have unique characteristics with patients with gliomas.

The study also pointed out that depression was the most significant symptom in both clusters. The study replicated the findings of Pelletier et al. (2002), showing that depression was a significant predictor of QoL in people with brain tumours. The article also highlighted existing evidence that, “depression hastens mortality in people with high - grade tumours as well as low - grade tumours” (p.65).

Keir, S., Calhoun – Egan, R., Swartz, J., Saleh, O. & Friedman, H. (2008) Screening for distress in patients with brain cancer using the NCCN's rapid screening measure. *Journal of Psycho - Oncology*, 17, 621 – 625.

The purpose of this article was to see if patients with brain cancer (brain tumour) were at risk of experiencing elevated levels of distress due to the severe functional, neuro-cognitive, and neuro-psychological sequelae of the disease. The study used the National Comprehensive Cancer Network's Distress Thermometer to evaluate the extent and sources of distress within a population of 75 patients with brain cancer. Patients were also asked to designate which items in a 34 - item list constituted a source of distress. The results revealed 52% of patients met the, greater than or equal to, cut off score for distress. On average, brain cancer patients reported 5.8 cancer related items of concern. The conclusions drawn from this study were: brain cancer patients are likely to experience distress at some point during their disease trajectory. Other findings indicated that patients with brain cancer, "report experiencing more distress than those with cancer at other sites" (p. 624). Another significant finding from the study was that emotional concerns, rather than physical concerns, tended to be more prevalent sources of distress for brain cancer patients.

Litofsky, N., Scott, M., Farace, E., Anderson, F., Meyer, C. & Huang, W. (2004) Depression in patients with high - grade glioma: results of the Glioma Outcomes Project. *Journal of Neurosurgery*, Vol 54, Issue 2, p. 358 - 367.

The objective was to study the incidence of depression among patients with high-grade glioma, document factors associated with the presence of depression and examine the relationship between depression and patient outcome. Data from 598 patients were analyzed immediately post operatively and again three and six months after surgery for high-grade glioma. Physician-reported depression was defined according to the Diagnostic and Statistical Manual of Mental Disorders, edition, 4 (DSM -1V). Patient self assessment of depression was based on responses to questions contained in two validated functional status surveys. Additional outcomes were examined. The results showed that in the early postoperative period, physicians reported depression in 15% of patients, whereas 93% of patients reported symptoms consistent with depression. The incidence of patient self-reported depression remained similar at 3 and 6 month follow up, whereas, physician reported depression increased from 15% in the early postoperative period to 22% at both 3 and 6 month follow up. Concordance between physician recognition of depression and treatment of depression was low initially (33%) and increased at 3 and 6 months (51% and 61% respectively). As compared with patients who were not depressed, survival was shorter and complications were more common among depressed patients. The study concluded that symptoms of depression were common immediately after surgery for glioma, and they increased throughout the 6 month period after surgery. The findings supported the hypothesis that clinically important depression is a common complication in patients with a high - grade glioma.

Mainio, A., Hakko, H., Niemela, A., Koivukangas, J & Rasanen, P. (2006) Gender differences in relation to depression and quality of life among patients with a primary brain tumor. *Journal of European Psychiatry*, Vol 21 (3) p.194 – 199.

The authors of this article studied the relationship between depressive symptoms and quality of life (QoL) as well as functional status in primary brain tumour patients at recurrent measurements. Differences in QoL between depressive and non-depressive samples by gender were controlled for tumour characteristics and patients' psychosocial factors. 77 patients with a primary brain tumour, 30 males and 47 females, were studied. Patient depression was assessed by the Beck Depression Inventory (BDI) and Crown - Crisp Experiential Index (CCEI), functional status by Karnofsky Performance scale (KPS) and QoL by Sinton's 15D before tumour operation as well as at 3 months and 1 year from surgical operation of the tumour. The results showed the level of QoL in females was lower compared to that of males. Depression was the main predictor for worse QoL in the patients at all measurements. Depressive patients with a benign brain tumour had significantly worse QoL versus non-depressive ones. The conclusions reached by the study were: decreased QoL was strongly related to depression, especially among patients with a benign brain tumour. The authors recommended further studies to find out whether sufficient depression therapy improved the QoL of brain tumour patients.

Mainio, A., Tuunanen, S., Hakko, H., Niemela, A., Koivukangas, J. & Rasanen, P. (2006) Decreased quality of life and depression as predictors for shorter survival among brain tumor patients with low – grade gliomas: a follow up from 1990 to 2003. *Journal of European Archives of Psychiatry and Clinical Neurosciences*. 256: 516 - 521.

The objective of the study was to assess long-term survival of brain tumour patients, and in particular, to evaluate the relationship of quality of life (QoL) to survival among low grade glioma patients. 101 brain tumour patients were followed up from surgery (1990 - 1992) until the end of the year 2003. Depression was evaluated by the Beck Depression Inventory (BDI) and QoL with Sintonen's 15D scale before operation and at one year as well as at five years after operation. The results showed the mean survival time in years were significantly related to tumour malignancy, being the shortest, 1.9 (0.6) for patients with high-grade gliomas, while patients with low-grade gliomas or a benign brain tumour had mean survival times of 9.1 (1.0) and 11.6 (0.5), respectively. The results also showed at follow up, depressed low-grade glioma patients had a significantly shorter survival time, 3.3 - 5 - 8 years, compared to non-depressed low-grade glioma patients, 10.0 - 11.7 years. A decreased QoL in low-grade glioma patients was significantly related to the shorter survival. The results from the study suggested that depression and decreased QoL among low-grade glioma patients was related to shorter survival at long-term follow up. Decreased QoL served as an indicator for poor prognosis in low-grade glioma patients.

Pelletier, G., Verhoef, M., Khatri, N. & Hagan, N. (2002) Quality of life in brain tumor patients: the relative contributions of fatigue, emotional distress, and existential issues.

Journal of Neuro - Oncology, 57, 41 – 49.

The objectives of the study were (1) to document the prevalence of depression, fatigue, emotional distress, and existential issues in a sample of brain tumour patients, (2) examine the interconnectedness of these problems and, (3) explore their relationship with disease-related variables and QoL. A cross-sectional, questionnaire-based survey of 73 patients with a primary brain tumour was administered. Results showed a high burden of depressive symptoms as measured by the Beck Depression Inventory -11 (mean score 11.1, SD 7.4), 38% of the sample scoring in the clinically depressed range. 50% of the sample struggled with existential issues. Although scores reflecting depression, fatigue, emotional distress, and existential problems were interrelated, the presence of depressive symptoms was the single most important independent predictor of QoL in this cohort of brain tumour patients. The results of this study affirmed that depressive symptoms are a prevalent and a serious clinical issue for brain tumour patients. "The clinical implications of this study are clear: QoL is often poor in brain tumour patients, and could potentially be improved if depression can be identified, and managed." (p. 47).

Wellisch, D., Kaleita, T., Freeman, D., Cloughesy, T. & Goldman, J. (2002) Predicting major depression in brain tumor patients. *Journal of Psycho – Oncology, 11, 230 – 238.*

The aim of this study was to diagnose major depressive disorder (MDD) in adult brain tumour patients using DSM - 1V criteria. 89 brain adult brain tumour patients were examined in an ambulatory neuro-oncology clinic setting using a structured psychiatric interview which followed current DSM – 1V diagnostic criteria for MDD. Each patient was interviewed on a one time basis. The patients were referred for evaluation on a consecutive basis. 28% of the sample (N =89) were found to have depressive disorder using DSM – 1V criteria. Results of the study showed a substantially higher incidence of MDD was found in this sample of adult brain tumour patients compared with other adult, ambulatory cancer patients previously evaluated with DSM - 1V criteria. The incidence of MDD was about triple that found on other published studies using DSM -1V criteria. An important recommendation comes from the authors of the study, "the clinician is advised to carefully consider contributions from each dimension (medical, psychological, and social) in his/her understanding of the adult brain tumour patient" p.236. The authors also made the point that physical disability and mood disorder could be very difficult to differentiate in this and other populations of seriously medically ill patients. They also suggested that medical treatments such as corticosteroids and radiation treatment further complicated the very complex diagnostic problems associated with brain tumour. However, they maintained these symptoms should not cause the clinician to ignore or discount the possible presence of depression, as symptoms of sadness were endorsed by 52.6% of the patients in their study.