Acute Care Utilization in Glioblastoma: A descriptive analysis of causes, burden and outcomes

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BACKGROUND

Patients with glioblastoma (GBM) are living longer with advances in treatment. Treatment occurs largely in an inpatient setting (but complications frequently lead to extended hospitalizations). These hospitalizations are uncomfortable to patients. Currently, little data exists on frequency and outcomes of acute care utilization of GBM.

OBJECTIVES

To investigate the frequency, indications and implications of hospitalizations & emergency room visits by GBM patients.

METHODS

We performed an IRB-approved retrospective study of 150 patients with histologically confirmed GBM receiving care at one cancer center of the UCSD Health System. Each patient's medical record was reviewed for all acute care visits (ACV) or ED visits, that were associated with the patient's health status or treatment. Data was collected on demographics, ED visits, length of stay, disposition upon discharge, time from diagnosis to first ACV, time from ACV to death, and survival time spent in acute care.

PATIENT CHARACTERISTICS

<table>
<thead>
<tr>
<th></th>
<th>All Patients (N=156)</th>
<th>Patients with ACV (N=152)</th>
<th>Patients without ACV (N=146)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median Age at Diagnosis</td>
<td>62</td>
<td>62 (27-86)</td>
<td>64 (28-89)</td>
</tr>
<tr>
<td>Patients with IFS (%)</td>
<td>66%</td>
<td>62%</td>
<td>64%</td>
</tr>
<tr>
<td>Gender</td>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
</tr>
<tr>
<td>Female</td>
<td>71%</td>
<td>68%</td>
<td>73%</td>
</tr>
<tr>
<td>Male</td>
<td>29%</td>
<td>32%</td>
<td>27%</td>
</tr>
<tr>
<td>Patients with biopsy only</td>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
</tr>
<tr>
<td></td>
<td>41%</td>
<td>40%</td>
<td>41%</td>
</tr>
<tr>
<td>Median survival (months)</td>
<td>15.1</td>
<td>14</td>
<td>22.2</td>
</tr>
<tr>
<td>Death</td>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
</tr>
<tr>
<td></td>
<td>115%</td>
<td>72%</td>
<td>56%</td>
</tr>
</tbody>
</table>

ED VISITS ONLY

The most common reasons for ED visits alone were:
- Seizures (29%)
- Cerebral edema (24%)
- Headache (17%)

3% of all visits resulted in discharge from the ED.

INPATIENT ADMISSIONS

95% of visits resulted in an admission of which 60% were admitted to a medical floor and 26% to an ICU with a median length of stay of 4 days. 95% of all visits were associated with disease progression confirmed on imaging.

The most common indication for admission included:
- Seizures (29%)
- Electrolyte imbalances (17%)
- Infection (12%)

60% of patients required a higher level of care upon discharge. 30% of patients were discharged home, although nearly half had post-discharge home services. 7% of patients died during this hospitalization. Only 10% of patients were discharged to hospice.

RESULTS

SEIZURES & ACUTE CARE UTILIZATION

30% of all visits were for seizures, which were the most common cause of ED and inpatient admissions. 65% of patients who visited acute care had at least 1 visit for seizure. 15% of patients who presented with seizures had multiple visits for seizures. Seizures were the first cause of ACV.

SURVIVAL IN PATIENTS WITH ACV VS. NO ACV

Patients with ACV had a median survival time that was 6 months longer those with hospital visits. 10% of patients died within 90 days of an ACV.

SUMMARY

7 in 10 GBM patients utilize acute care at some point during diagnosis. Seizures were the most common cause. 65% of patients with seizures had a higher level of care related to treatment related side effects. 60% of visits resulted in discharge from the ED. An ACV was associated with death within 30 days and decreased survival time.

FUTURE DIRECTIONS

Potential interventions to reduce acute care utilization include acute palliative care & hospice integration and improved survivor care with seizure education and medication optimization.

Future studies should be prospective and focus on costs and identifying risk factors for acute care utilization. They should also include hospital discharge planning and support for patients and their associated networks. Survival data within 90 days of an ACV should be used as a quality metric in care of GBM patients.