Current glioma management

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Overview

• Defining prognosis
• Classification
• Treatment options for glioma
Prognosis

• Traditionally
  – Overall survival
  – Progression free survival

• Quality of Life
  – Neurological condition
  – Psychological support
  – Social/financial

• Family concerns
Basic Classification of Glioma (WHO)

• Grade I
  – Pilocytic astrocytoma

• Grade II
  – Astrocytoma
  – Oligodendroglioma
  – Mixed

• Grade III
  – Anaplastic astrocytoma / oligodendroglioma

• Grade IV
  – Glioblastoma multiforme (GBM)
Common Themes in Improved Management

• Earlier and more accurate diagnosis
• Safer Surgery
  - Stereotaxis
  - Minimally invasive techniques
  - Functional mapping
• Safer and more effective radiotherapy and chemotherapy
• Better follow up

• Multidisciplinary care
  • Brain Tumour Nurse Practitioner
Techniques to Improve Outcome

Minimally invasive techniques

• Shave
• Incision
• Craniotomy
Functional mapping - Awake craniotomy

• Aims to identify CRITICAL areas of the brain and AVOID them – MINIMIZE THE RISK
• Areas controlling movement and speech
• Cortical Stimulation – identify motor areas
• Awake craniotomy – for speech areas
Cortical stimulation
Awake craniotommy (cont’d)
Low grade glioma

- Observation
- Biopsy
- Resection
- Radiotherapy
- Chemotherapy

- Optimal management is
  - Maximal safe resection
  - Radiotherapy
  - 6 m chemotherapy
Glioblastoma Multiforme

• A diagnosis of despair?
  – Surgery
    • Not well done
  – Radiotherapy

  » Median Survival <12 months

• Modern Approach
  – “Aggressive” surgical approach (gliadel)
  – Chemotherapy/radiotherapy

  » Median Survival 17 months
Stummer et al 2006. Lancet Oncology

GLIOLAN - fluorescent Guided tumour resection
Chemotherapy improves outcome

<table>
<thead>
<tr>
<th></th>
<th>RT</th>
<th>TMZ/RT</th>
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<tbody>
<tr>
<td>Median OS, mo:</td>
<td>12.1</td>
<td>14.6</td>
</tr>
<tr>
<td>2-yr survival:</td>
<td>10.4%</td>
<td>26.5%</td>
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<tr>
<td>HR [95% C.I.]:</td>
<td>0.63 [0.52-0.75]</td>
<td>p &lt; 0.001</td>
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Local therapies

Have a role

Gliadel - wafers
CCNU
## Comparison to Other Studies

<table>
<thead>
<tr>
<th></th>
<th>Stupp (RT alone)</th>
<th>Westphal (GBM)</th>
<th>Stupp (TMZ+RT)</th>
<th>La Rocca (40 pts)</th>
<th>McGirt 2009 (33 pts)</th>
<th>Pan (21 pts)</th>
<th>Walker (15 pts)</th>
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<tbody>
<tr>
<td>Overall survival (m)</td>
<td>12.1</td>
<td>13.1</td>
<td>14.6</td>
<td>18.6</td>
<td>20.7</td>
<td>17</td>
<td>17.6</td>
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<tr>
<td>PFS (m)</td>
<td>5.0</td>
<td>6.9</td>
<td>7.2</td>
<td></td>
<td>8.5</td>
<td>11.3</td>
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<tr>
<td>18/12 survival (%)</td>
<td>25</td>
<td>23</td>
<td>44</td>
<td>55</td>
<td>58</td>
<td>45</td>
<td>53</td>
</tr>
<tr>
<td>24/24 survival (%)</td>
<td>10.4</td>
<td>16</td>
<td>26</td>
<td>29</td>
<td>36</td>
<td>39</td>
<td>53*</td>
</tr>
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</table>

Bevacizumab (AVASTIN): precise VEGF inhibition

Recombinant humanised monoclonal anti-VEGF antibody developed from murine anti-VEGF MAb A4.6.1\(^1\)

- 93% human, 7% murine
- recognises all major isoforms of human VEGF, Kd = 8 \times 10^{-10}\text{M}
- terminal half-life 17–21 days

Significant responses seen often after AVASTIN
Recurrent GBM: What do I do?

**Surgery**
Whenever possible (good and intermediate patients)
Add Gliadel whenever possible (including when used before)

**Chemotherapy**
Recommend considering 2\textsuperscript{nd} line agents or protocols
Bevacizimab has important role
Options very limited when/if this fails

SRS – rarely indicated but consider when possible

Consider eligibility for trials
Dendritic Cell Vaccine

Temozolomide

29/7/03

23/10/03

30/12/03

17/3/04
HCMV infection in GBM tissues

CMV seropositive

CMV seronegative

CMV IE-1

Control
Synthetic Viral peptides Cultured together in GMP facility

Activated anti-viral CD8+ T cells

GBM patient

Inject back into the patient

Blood lymphocytes
Clinical response: pre- and post-T cell therapy

Pre-Therapy

April 2009

Post-Therapy

(1 m post T cell therapy)

Post-Therapy

(6 m post T cell therapy)
Brain Tumour Nurse Practitioner

• Education
  - Preoperative
  - Perioperative
  - Postoperative

• Support for patient and family

• Coordination of Care
What should be done?

63 female

35 male
Dear David,

I just want to thank you for the way that you handled this very difficult journey and your very professional approach made the journey a little easier.

The appointment of Vivian, Bess and the whole and dedicated she was an added bonus especially the last six months. I gave great comfort to myself, my daughter and Tom.

Thank you once again.

All the best.