BCCA Protocol Summary For Modified PCV Chemotherapy Of Brain Tumours Using Procarbazine, Lomustine (CCNU) and vinCRISTine

Protocol Code  

CNMODPCV

Tumour Group  

Neuro-oncology

Contact Physician  

Dr. Brian Thiessen

ELIGIBILITY:

- Adjuvant treatment of progressive, incompletely resected low grade glioma following RT
- Adjuvant treatment of low grade glioma, age over 40
- Adjuvant treatment of adult medulloblastoma, age over 40
- Adequate hematological, renal and hepatic function

TESTS:

- Baseline: CBC and diff, platelets, serum creatinine, AST, GGT, bilirubin, serum glucose (for patients on dexamethasone), anticonvulsant levels
- Before each cycle: CBC and diff, platelets, serum creatinine, AST, GGT, bilirubin
- Day 22: CBC and diff, platelets
  - CBC and diff, AST, GGT, bilirubin, serum creatinine before last cycle.
- Imaging: CT or MR every 2nd cycle

PREMEDICATIONS:

- ondansetron PO 8 mg q12h for 36 hours (starting 30 min before lomustine), then prochlorperazine PO or dimenhydrinate PO prn
- dexamethasone PO 8 mg q12h for 36 hours (starting 30 min before lomustine), then prochlorperazine PO or dimenhydrinate PO prn
- if patients are nauseated with procarbazine, may divide procarbazine dose or add regular prochlorperazine
TREATMENT:

<table>
<thead>
<tr>
<th>Day</th>
<th>Drug</th>
<th>Dose</th>
<th>BCCA Administration Guideline</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>vinCRIStine</td>
<td>1.4 mg/m² (see below for maximum cap dose)*</td>
<td>in 50 mL NS over 15 mins</td>
</tr>
<tr>
<td>1</td>
<td>lomustine (CCNU)</td>
<td>110 mg/m² at bedtime</td>
<td>PO</td>
</tr>
<tr>
<td>2</td>
<td>procarbazine</td>
<td>60 mg/m²/day, days 2 to 15</td>
<td>PO</td>
</tr>
<tr>
<td>22</td>
<td>vinCRIStine</td>
<td>1.4 mg/m² (see below for maximum cap dose)*</td>
<td>in 50 mL NS over 15 mins</td>
</tr>
</tbody>
</table>

- First line chemotherapy for anaplastic oligodendroglioma:
  - Repeat every 6 weeks x 6 cycles
- Adjuvant chemotherapy for primitive neuroectodermal tumour (PNET):
  - Repeat every 6 weeks x 4 to 6 cycles as tolerated
- Recurrent oligodendrogliomas and mixed gliomas not previously exposed to PCV or with a prior good response to PCV
  - Repeat every 6 weeks x 4 to 6 cycles based on response and tolerability
- Low grade gliomas, to start two weeks post radiation therapy
  - Repeat every 6 weeks x 6 cycles as tolerated

*For planned treatment greater than 4 cycles, cap vinCRIStine at 2 mg

DOSE MODIFICATIONS:

1. Hematological: modify lomustine and procarbazine, not vinCRIStine.

For Day 1/Begninning Cycle counts:

<table>
<thead>
<tr>
<th>ANC (x10⁹/L)</th>
<th>Platelets (x10⁹/L)</th>
<th>Dose (lomustine, procarbazine)</th>
</tr>
</thead>
<tbody>
<tr>
<td>greater than 1.5 and greater than 100</td>
<td>give 100%</td>
<td></td>
</tr>
<tr>
<td>1 to 1.5 and/or 70 to 100</td>
<td>give 80%*</td>
<td></td>
</tr>
<tr>
<td>less than 1 and/or less than 70</td>
<td>delay 1 week and resume at 60%</td>
<td></td>
</tr>
</tbody>
</table>

*For lomustine, this dose becomes the new 100% dose for subsequent treatments

For Day 22 counts

- modify Day 1 dosing for the rest of the treatment.
- If Day 22 counts and Day 1 counts are low, the reduction is based on the lowest of the two counts (i.e., if Day 22 counts dictated a 60% dose reduction and the Day 1 counts dictated a 80% dose reduction, then the dose should be lowered to 60%)
- If dose modification is required for the first treatment cycle, reconsider the program’s advisability as severe myelosuppression is common in future cycles.
- In patients with low grade gliomas, for undue toxicity switch to CNTEMOZ for remaining cycles.

<table>
<thead>
<tr>
<th>ANC (x10^9/L)</th>
<th>Platelets (x10^9/L)</th>
<th>Dose (lomustine, procarbazine)</th>
</tr>
</thead>
<tbody>
<tr>
<td>greater than 1.5 and greater than 100</td>
<td>give 100%</td>
<td></td>
</tr>
<tr>
<td>1 to 1.5* and/or 75 to 100*</td>
<td>give 80%</td>
<td></td>
</tr>
<tr>
<td>less than 1* and/or less than 75*</td>
<td>give 60%</td>
<td></td>
</tr>
</tbody>
</table>

*NOTE: Patients with these variables should have careful monitoring (at least twice a week) of WBC and platelet counts. ALL patients on dexamethasone should be given prophylactic cotrimoxazole DS (SEPTRA DS®). Platelet TRANSFUSIONS for platelet less than 40 x10^9/L and downward trend. Consult contact physician if any questions.

Consideration for CXR should be made for patients with LOW counts who are on dexamethasone.

2. **Renal dysfunction**: If creatinine clearance less than 50 mL/min, reconsider treatment program

3. **Hepatic dysfunction**: hold chemo if AST/ALT greater than 5 x ULN or bilirubin greater than 25 micromol/L until AST/ALT less than or equal to 1.5 x ULN or bilirubin less than 25 micromol/L, then reinstitute at 60% dose.

4. **Respiratory**: Review case

5. **Intolerable side effects**: Re-evaluate treatment. For patients with low grade gliomas, switch to CNTEMOZ for remaining cycles.

**PRECAUTIONS:**

1. **Peripheral neuropathy**: Numbness and tingling of fingers and toes; distal weakness, foot drop; constipation; jaw pain; mild to moderate nausea/vomiting.

2. **Psycho-neurological complaints**: including drowsiness

3. **Pancytopenia**: often prolonged thrombocytopenia; possible renal damage

4. **Neutropenia**: Fever or other evidence of infection must be assessed promptly and treated aggressively

5. **Extravasation**: vinCRISTine causes pain and tissue necrosis if extravasated. Refer to BCCA Extravasation Guidelines

6. **Hypersensitivity**: Reactions are common with procarbazine. Refer to BCCA Hypersensitivity Guidelines. *Hypertensive crisis* if taking MAO-like drugs or foods high in tyramine - diet sheet to be given while on procarbazine. Infrequent allergy to procarbazine includes cough.
Call Dr. Brian Thiessen or tumour group delegate at (604) 877-6000 or 1-800-663-3333 with any problems or questions regarding this treatment program.

Date activated: 10 Jul 1996
Date revised: 1 Nov 2016 (Eligibility updated)

References