Efficacy of Memantine in Preventing Neurocognitive Dysfunction Induced by Radiation Therapy in Patients with Brain Metastases: A Systematic Review of Clinical Trials.

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Objectives
To gather the safety and efficacy data of memantine therapy in prevention of neurocognitive dysfunction induced by radiation therapy in brain metastases patients.

Methods
Comprehensive literature search in PubMed®, Embase®, Scopus®, The Cochrane Library, ClinicalTrail.gov and Google scholar from an inception until November 2021

Conclusion
This comprehensive review revealed that memantine therapy had considerable benefits in preventing neurocognitive dysfunction and enhancing patients’ quality of life following radiation therapy in brain metastatic patients.

Prisma Flowchart
Records identified in databases (n=1194)
→
Records after removing duplication (n=1022)
→
Title and abstracts screened (n=12)
→
Record assessed for eligibility (n=4)
→
Studies included in qualitative synthesis (4)

Table

<table>
<thead>
<tr>
<th>Studies</th>
<th>Cognitive test</th>
<th>Memantine arm</th>
<th>Control arm</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wong P et al, 2016</td>
<td>NAWM</td>
<td>0.1 (AUC difference)</td>
<td>1.9</td>
<td>0.01</td>
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<tr>
<td>Brown PD et al, 2013</td>
<td>Recall and recognition</td>
<td>0.72</td>
<td>0.39</td>
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<tr>
<td>Brown PD et al, 2016</td>
<td>Recall and recognition</td>
<td>0.8 (mean difference)</td>
<td>0.13</td>
<td>0.058</td>
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<td>COWA Test</td>
<td>0.16</td>
<td>-0.08</td>
<td>&lt;0.0001</td>
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</tbody>
</table>

Reference