Background

- Palliative care is increasingly recognized as important in the treatment of neurosurgical patients, but misunderstandings about the definition and role of palliative care can present barriers to access.
- Neurosurgical interventions such as deep brain stimulation (DBS) and epilepsy surgery can be powerful tools in a palliative plan of care.
- Published results from neurosurgical research describe treatments as “palliative” inconsistently and often without explicit definition. (Blackstone et al., 2021)

Aims

- Elucidate the ways in which benefits of neurosurgical interventions are presented as “palliative” in research.
- Identify how neurosurgical researchers define palliative benefit.
- Provide recommendations for future research based on findings.

Methods

- A focused narrative review of published research in epilepsy surgery and DBS was conducted using the following search terms: palliative, neurosurgery, epilepsy surgery, deep brain stimulation.
- Research articles using the term “palliative” were analyzed to discern whether and how the term was defined. When an explicit definition was lacking, contextual clues were used to infer meaning.

Examples from literature

<table>
<thead>
<tr>
<th>Examples from literature</th>
<th>Definitions</th>
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<tr>
<td>Epilepsy surgery: “The term palliative epilepsy surgery is usually used when a surgical intervention does not offer a high chance for complete seizure freedom but aims at decreasing the global seizure frequency.” (Wellmer et al., 2016)</td>
<td>The authors define palliative as a reduction in seizure frequency.</td>
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<tr>
<td>Epilepsy surgery: “The palliative nature of surgical treatment for DS makes actual seizure frequency less important than overall quality of life improvement gained.” (Dlouhy et al., 2016)</td>
<td>The authors define palliative benefit as improvement in overall quality of life.</td>
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<td>DBS for dystonia: “DBS inserted as a palliative measure but non-rechargeable battery not replaced, therefore stimulation ceased. Patient died with full palliative care support.” (Kaminska et al., 2017)</td>
<td>This quote seems to use two different definitions of “palliative”: non-curative and comfort measures at end-of-life.</td>
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Results

- Forty-eight articles published between 2004 and 2022 were identified in the review.
- Only 3 articles provided an explicit definition of “palliative.” Both explicit and inferred definitions based on context implied inconsistent goals of treatment.
- Definitions of “palliative” included any non-curative intervention, a last resort for treatment-refractory disease, improving a particular symptom, or improving overall quality of life.

Conclusion

- Researchers should be clear about how they define and measure palliative benefit of neurosurgical interventions. Measuring palliative benefits may require the addition of patient- and family-reported outcomes and lengthening post-trial follow-up.
- Ethical advantages of this approach include clearer communication with research participants, and a richer understanding of the palliative benefits and limitations of neurosurgery.
- Funding agencies, IRBs, DSMBs, and manuscript reviewers should request clarification when palliative outcomes are not clearly defined.