

Preservasi Memori pada Pasien Tumor Otak Metastasis yang Menjalani Whole Brain Radiotherapy dengan dan tanpa Hippocampal Sparing: Telaah Sistematis = Memory Preservation in Whole Brain Radiotherapy with and without Hippocampal Sparing: A Systematic Review

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Abstrak

Latar Belakang: WBRT adalah salah satu terapi utama pada tumor otak metastasis. Gangguan kognitif, terutama memori, adalah komplikasi yang umum terjadi pada WBRT. Preservasi memori merupakan hal yang penting diteliti karena memori memiliki banyak keterkaitan dengan domain kognitif lain, serta dengan kualitas hidup. WBRT dengan hippocampal sparing, dimana hipokampus dilindungi dari radiasi, telah menunjukkan efek protektif pada preservasi memori pada bukti-bukti ilmiah sebelumnya.

Metode: Dilakukan sebuah tinjauan sistematis untuk mengkaji apakah WBRT dengan hippocampal sparing bermanfaat dalam preservasi memori, dibandingkan dengan WBRT konvensional. Pencarian sistematis dilakukan untuk uji klinis dan studi observasional, dengan WBRT hippocampal sparing sebagai intervensi dan memori sebagai salah satu luaran pada basis data mayor, register uji klinis, dan basis data lokal serta gray literature. Penilaian risiko bias dilakukan menggunakan Risk of Bias-2 (RoB-2), Risk of Bias in Non-randomised Studies of Interventions (ROBINS-I), dan Newcastle-Ottawa Scale (NOS), sesuai jenis studi. Data dipresentasikan menggunakan Harvest plot dan focused narrative synthesis.

Hasil: Kami menemukan 8 studi. Studi yang dirandomisasi memiliki risiko bias rendah dan studi yang tidak dirandomisasi memiliki risiko bias sedang. Distribusi Harvest plot menunjukkan gradien positif, yaitu efek protektif WBRT dengan hippocampal sparing.

Kesimpulan: WBRT dengan hippocampal sparing menunjukkan efek protektif terhadap fungsi memori pasien tumor otak metastasis dan aplikabel untuk dilakukan di setting RSCM. Diperlukan penelitian lebih lanjut mengenai peran WBRT hippocampal sparing pada pasien di RSCM.

Background: Whole brain radiotherapy (WBRT) is the mainstay therapy for metastatic brain tumor. Cognitive dysfunction, particularly memory, is a common side effect of WBRT. Memory preservation has become increasingly popular, as memory is inter-related with other cognitive domains as well as with quality of life. WBRT with hippocampal sparing, where the hippocampus is avoided from radiation, has shown some protective effects in memory preservation in previous studies.

Methods: We conducted systematic review to determine whether WBRT with hippocampal sparing is beneficial in preserving memory compared to conventional WBRT. We systematically searched for clinical trials and observational studies with hippocampal sparing WBRT as the intervention and memory as one of the outcomes. Major databases, clinical trial registries, as well as local databases and gray literature were searched. Risk of bias assessment was performed using Risk of Bias-2 (RoB-2), Risk of Bias in Non-randomised Studies of Interventions (ROBINS-I), and Newcastle-Ottawa Scale (NOS) tools, according to study type. Data were presented using Harvest plot and focused narrative synthesis.

Results: We identified 8 studies, which consisted of randomized and non-randomized studies. All randomized clinical trials showed overall low risk of bias,

whereas nonrandomized trials and cohort studies showed moderate risk of bias. Harvest plot distribution showed a positive gradient. i.e. protective effect of hippocampal sparing WBRT.

Conclusions: WBRT with hippocampal sparing is effective in preserving memory in metastatic brain tumor patients. It is applicable to be performed in Cipto Mangunkusumo Hospital. Further research is needed to assess its effectiveness in patients of Cipto Mangunkusumo Hospital.