

Delivery strategies of chemotherapy to the central nervous system

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Strategies to by pass the blood-brain barrier

- Intra-arterial infusion
- Intra-arterial infusion combined with osmotic breaching of the BBB
- Intra-arterial infusion combined with pharmacologic manipulation of the BBB
- Intranasal delivery
- Convection enhanced delivery (clyses)
- Implanted polymers
- Magnetic microspheres
- Ultrasound BBB disruption



The blood-brain barrier and the blood-tumor barrier remain great obstacles to the drug delivery to brain tumors. Credit: Dr. David Fortin, Bentham Science Publishers

The research thoroughly reviews the importance of the blood-brain

barrier (BBB) and the blood-tumor barrier (BTB) along with the current status and future perspectives of interesting physical and surgical strategies to circumvent these central nervous system (CNS) barriers in the treatment of malignant brain tumors.

In this paper, the authors particularly focus on assessing the development of a selected number of strategies that enhance the distribution of [therapeutic agents](#) to the CNS in the context of neuro-oncology. This review is unique in the sense that it concentrates on surgical and physical delivery methods that are of present-day interest and in current development. The following strategies are discussed in this review: intra-arterial delivery, osmotic BBB disruption, intra-nasal delivery, convection-enhanced delivery, implanted polymers, magnetic microspheres and ultrasound BBB disruption. For each [delivery](#) method, un-biased and up to date information on the current technique, preclinical data and available clinical data is provided.

This detailed overview on the topic will raise great interest in the oncology community as it is shown to be a greatly prospering field of research. Finally, the authors also underline the importance of encouraging collaborations to allow greater progress in preclinical and clinical research with the overall goal to find ways to better impact patient outcomes and survival.

More information: Annie Drapeau et al. Chemotherapy Delivery Strategies to the Central Nervous System: neither Optional nor Superfluous, *Current Cancer Drug Targets* (2015). [DOI: 10.2174/1568009615666150616123548](#)

Provided by Bentham Science Publishers

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