



# Research Week 2020

## Safety of Intra-arterial (IA) Chemotherapy and Blood Brain Barrier Disruption (BBBD) for treatment of patients with malignant brain tumors

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### Keywords

Intra-Arterial Chemotherapy, Blood Brain Barrier Disruption, Brain Tumor

### Abstract

#### Background

Administration of chemotherapy via intra-arterial (IA) route results in a higher concentration of targeted chemotherapy against resilient brain malignancies with a decreased systemic chemotherapy side effect. Osmotic blood-brain barrier disruption (BBBD) further intensify drug delivery and effects on brain malignancies. The aim of this study is to determine the safety of the use of intra-arterial chemotherapy and blood brain barrier disruption to treat malignant brain tumors.

#### Methods

This is a single-institution, retrospective cohort study of malignant brain tumor patients at the Oregon Health and Science University (OHSU) to determine the safety of the use of IA and BBBD. Four hundred and thirty-six patients who were treated with IA and BBBD at OHSU from 1997-2018 were included in the study (4,940 procedures). Treatment complications were documented along with procedural outcomes and life expectancy after diagnoses. The data will be analyzed to determine if the safety of IA and BBBD.

#### Preliminary Results

Review of the 4,940 procedures shows a complication rate of 2.8% when utilizing IA and BBBD. This complication rate includes both major and minor complications. The major complication rate is approximately 0.8%. Further analyses will be performed to determine how the specific complications arose.

#### Discussion

Intra-arterial chemotherapy provides many benefits, including increased chemotherapy concentration at the tumor site and decreased systemic chemotherapy side effects. These benefits must be carefully compared to the potential risks associated with surgical

procedures in order to ensure physicians make correct treatment decisions when facing patients with malignant brain tumors. This study aims to determine if the benefits of intra-arterial chemotherapy outweigh the risks associated with the procedure. Results will also provide preliminary data to directly test the efficacy of intra-arterial (IA) chemotherapy infusion vs. traditional chemotherapy should the procedure be determined safe by this study.