Overview

There is no consensus on the ideal treatment protocol for stereotactic radiosurgery of benign intracranial tumors such as meningioma and acoustic neuroma. There are site and physician-specific preferences that have evolved over time. This project investigates radiation treatment patterns for benign intracranial tumors from the National Cancer Database.

Introduction

There is no agreed upon protocol for treatment of benign intracranial tumors. Most commonly meningiomas or neuromas, these tumors tend to be slow growing and cause symptoms by mass effect on surrounding structures. Although they tend to grow slowly, without treatment they tend to increase in size until they become symptomatic. Historically, they were discovered at this late stage as only large tumors would be able to be seen on pre-MRI imaging or would be found at the time of surgical exploration. Increasingly tumors are being found incidentally as more patients are imaged for a variety of reasons. Discovery of small, asymptomatic tumors presents a dilemma. Surgery often relies on significant morbidity, traditional external beam radiation exposes normal cranial structures to unnecessary radiation exposure, and monitoring tumors can lead to further growth and increased impact of treatment down the road. More recently, stereotactic radiosurgery has emerged as a method for treating benign tumors with minimal radiation sequela and good tumor control rates. The method of delivery and total radiation dose is no agreed upon and has changed over time.

This study uses the large tumor database of the National Cancer Database (NCDB) to investigate trends in treatment of benign intracranial tumors over time and across centers. The NCDB is a nationwide database that includes patient, tumor, and treatment variables along without outcomes such as 30 and 90 day, and overall survival.

Different institutions have different practice patterns as it relates to treatment of these tumors. Many include neurosurgery, radiation oncology, and otolaryngology depending on the location of the tumor. Each specialty brings unique background and experience to help shape the treatment plan and parameters, and help with long-term follow up and treatment of complications. Finally, appropriate analysis of large databases requires the expertise and experience of a trained biostatistician.