

Result

Significant differences in exposures exist between procedures with and without FD-CT. When 3D imaging was used, brain doses were on average 3 times higher for diagnostic, and 1.8 times higher for EVT. For all CAE procedures FD-CT was used. Statistics of delivered DAP and brain doses for each procedure are given in Table 1. Based on the 75th percentile of our data, local DRLs were 44, 104 and 96 Gy.cm² for diagnostic, CAE and EVT respectively (Figure 1). Mean brain dose for a single 3D DSA acquisition used in DCA and CAE was 11 mGy. In MD-CT, angiography of the Circle of Willis results in a brain dose of 20 mGy. For EVT, FD-CT parenchymal blood volume (PBV) acquisitions result in an average brain dose of 17 mGy. Brain doses of MD-CT cerebral perfusions are on average 3 times higher (50 mGy).

Conclusion

Use of FD-CT in INR should be considered carefully, because of its significant impact on delivered patient radiation doses. However, brain doses in MD-CT are 2–3 times higher compared to FD-CT.

[1] Sanchez RM, et al. Brain radiation doses to patients in an interventional neuroradiology laboratory. *AJNR*. 2014;35(7):1276–1280. doi:10.3174/ajnr.A3884

Table 1: Main statistics for delivered DAP and brain dose for diagnostic cerebral angiography, cerebral aneurysm embolization and endovascular stroke treatment.

	Diagnostic cerebral angiography		Cerebral aneurysm embolization		Endovascular stroke treatment	
	DAP (Gy.cm ²)	Brain dose (mGy)	DAP (Gy.cm ²)	Brain dose (mGy)	DAP (Gy.cm ²)	Brain dose (mGy)
Min	4.1	8	14.2	28	11.4	22
Max	80.2	155	180	348	386.9	748
Mean	31.5	61	81.8	158	78	151
75 th percentile	43.7	84	104.4	202	96.2	186

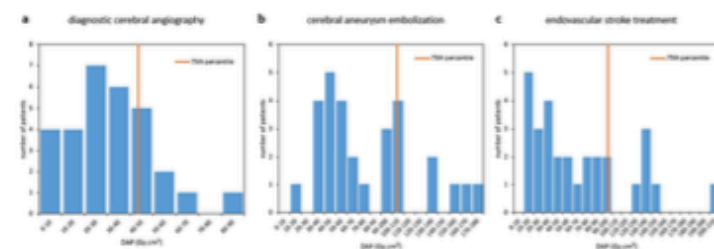


Figure 1: Frequency histogram with DAP values and 75th percentile for diagnostic cerebral angiography, cerebral aneurysm embolization and endovascular stroke treatment.

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ANALYSIS OF TREMOR RELAPSES AFTER TCMRGFUS THALAMOTOMY: CLINICAL FEATURES, PROCEDURAL FACTORS AND EVALUATION OF DTI TRACTOGRAPHY OF THE DENTATO-RUBRO-THALMIC TRACT (DRTT)

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Keywords: DTI tractography, tMRgFUS, tMRgFUS thalamotomy, dentato-rubro-thalamic tract (DRTT), Parkinson's disease, tremor

Introduction

To identify possible relevant factors for tremor relapse after treatment with tMRgFUS.

Method

We identified all cases of tremor recurrence among the patients treated in the period February 2018 and January 2020. We analyzed the demographic (gender, age) and clinical (etiology, disease duration) characteristics, compared to patients who did not present recurrences. For the analysis of imaging and procedural factors we selected a control group matched for clinical and demographic characteristics. Among the procedural factors we analyzed: SDR, number of active elements, skull surface area, number of sonications, maximum duration of sonication, maximum energy (J) and power (W), and accumulated thermal dose at the end of the treatment. For the imaging evaluation, we measured the size of the thalamotomy lesions with follow-up at 24hrs and 1,3,6 and 12 months. For the evaluation of the DRTT, a tractographic reconstruction was performed before and after (1 month) treatment; DTI parameters (FA, ADC, RD and AD) were also recorded.

Result

Concerning the clinical and demographic characteristics, we did not find statistically significant differences in gender, age and disease duration. 73% of patients with tremor relapses were Parkinson's disease patients. We did not find statistically significant differences in procedural and imaging factors between the two groups. In the tractographic evaluation we found an eccentric position of the DRTT (with respect to the thalamotomy lesion) in patients with tremor relapse.

Discussion & Conclusion

The most relevant determining factors for tremor relapse after MRgFUS thalamotomy appears to be the tremor from Parkinson's disease and inaccurate thalamic targeting. No differences emerged regarding the size of the thalamotomy lesion.

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TEMPORAL BONE PARAGANGLIOMAS – IMAGIOLOGICAL AND ANGIOGRAPHIC FINDINGS

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Keywords: paragangliomas, temporal bone, angiography

Introduction

Temporal bone paragangliomas are divided according to their location and relationship with the jugular bulb into tympanic/tympanomastoid and tympanojugular. The decision to surgically intervene depends on various factors and a thorough clinical evaluation complemented by imaging is of key importance. Angiography findings are invaluable in order to assess the vascular supply of the tumor, and endovascular pre-surgical embolization plays a relevant role to reduce blood losses intra-operatively, especially in tympanojugular paragangliomas. Our aim is to characterize the angiographic findings of temporal bone paragangliomas and to study possible relationships with the follow-up outcome.

Method

We reviewed the clinical and imagiological findings of patients with the diagnosis of temporal bone paraganglioma followed at our center between 2011 and 2019. Data regarding demographics, treatment modality and follow-up