Surgical Outcomes of Trigeminal Neuralgia in Patients with Multiple Sclerosis

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Introduction

- Trigeminal neuralgia (TN) is relatively frequent in Multiple Sclerosis (MS) patients with a 4% lifetime risk
- Procedural treatments are less effective than when used for classic TN
- Outcomes from direct comparisons between different procedures for MS-related TN is lacking
- In this study, initial pain-free response (IPFR), duration of pain-free intervals (PFI) and associated prognostic factors were evaluated

Methods

- This was a retrospective IRB-approved analysis performed on 96 MS-related TN patients who underwent 277 procedures(1-11/patient) in our institution (1996-2011)
- Procedures:

Precutaneus Retro-Gasserian Glycerol Rhizotomy (PRGR): 89

Balloon Compression (BC): 82

Stereotactic Radiosurgery (SRS): 52

Peripheral Neurectomy (PN): 28

Precutaneus Radiofrequency Rhizotomy (RFR): 15

Microvascular Decompression (MVD): 10

Peripheral Nerve Stimulation (PNS): 1

- Median follow-up was 69 months (range: 2-192 months)
- Primary end points:

IPFR: pain control with or without medication

PFI: Duration of pain free period until treatment failure or last follow-up

- Patient, disease and treatments characteristics, as well as outcomes were statistically evaluated.

Demographic Data

Factor	Number
Gender	
Male (%)	38 (40%)
Female (%)	58 (60%)
Age	
MS first symptom: median (range)	34 years (17-70)
MS diagnosis: median (range)	38.5 years (17-71)
TN diagnosis: median (range)	50 years (28-79)
Interval between MS first symptom and TN: Median (range)	14.5 years (0-42)
Interval between MS diagnosis and TN: Median (range)	11 years (-11-42)
MRI	
Plaques in brainstem (%)	44 (46%)
Vascular compression (%)	20 (21%)

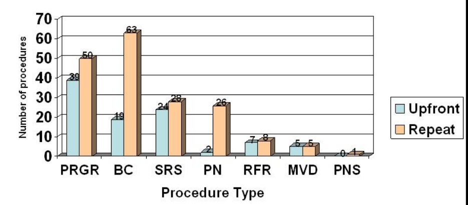
MS Characteristics

Factor	Number
MS Type	
Relapsing/ Remitting (%)	87 (31%)
Primary Progressive (%)	68 (25%)
Secondary progressive (%)	91 (33%)
Relapsing/ Progressive (%)	31 (11%)
KPS at treatment	
≤60 (%)	128 (46%)
70 (%)	40 (14%)
80 (%)	44 (16%)
90 (%)	65 (23%)
MS related symptoms (%)	244 (88%)
Concurrent MS treatment (%)	140 (50%)

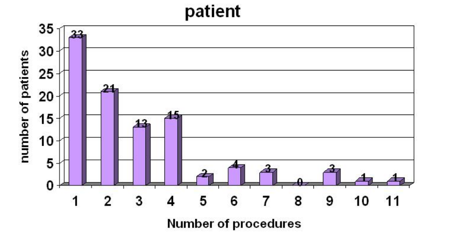
TN Characteristics

Factor	Number
Side of pain	
Left (%)	47 (49%)
Right (%)	39 (41%)
Bilateral (%)	10 (10%)
Presentation with typical TN pain	
At first presentation (%)	75 (78%)
Remain typical by the last follow up(%)	67 (70%)
Distribution of pain	
V1 only (%)	1 (1%)
V2 only (%)	13 (14%)
V3 only (%)	27 (28%)
V1+V2 (%)	5 (5%)
V2+V3 (%)	45 (47%)
V1+V2+V3 (%)	5 (5%)

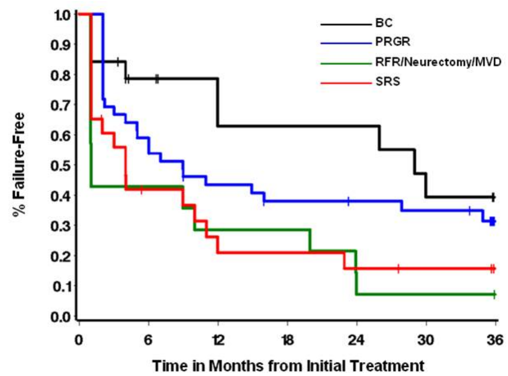
Number of procedures considering procedure and treatment types

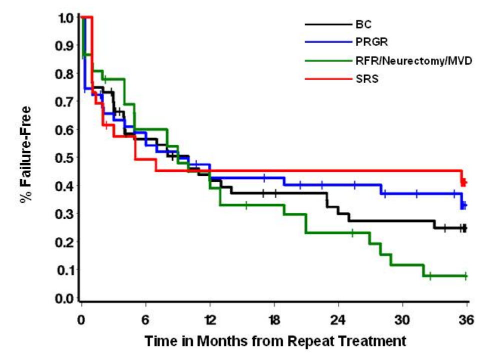


Total number of procedures performed for each patient

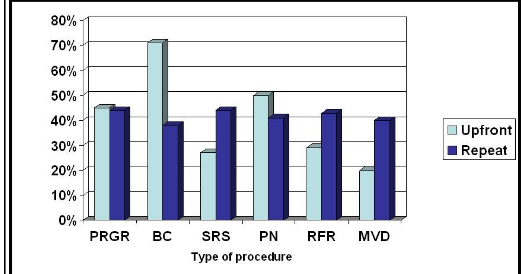


PFI (Kaplan- Meier)

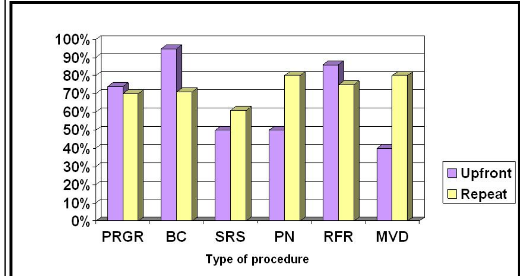




1 year PFI



IPFR



Multivariate Results of IPFR as Upfront Procedures

Factor	Odd Ratio	95% CI	P value
BC	22.5	2.5-201	0.006
PRGR	3.3	1.1-10.3	0.04
No MS symptoms	9.3	1.1-78.8	0.04

Conclusions

In our series of 96 patients and 277 different procedures:

- As upfront procedures, BC had significantly better IPFR and PFI compared with other treatments followed by PRGR
- In repeat procedures, we observed no statistically significant difference between procedures, in parts because patients had been selected based on the favorable results of prior procedures