



Comparison of Radiofrequency and Percutaneous Epidural Adhesiolysis by Catheter type in Low-Back Pain



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Introduction

- Chronic low back pain can be caused by various factors
 - ✓ Herniated lumbar disc disease, lumbar spinal stenosis, facet joint disease
- Non-surgical treatments
 - ✓ Analgesic medication, intervention; lumbar epidural injection, facet joint nerve block, physiotherapy
- Percutaneous epidural adhesiolysis (PEA)
 - ✓ Remove epidural scarring by placing a catheter directly into the fibrous adhesions and chemical adhesiolysis
- Aim: To compare the effects of three catheter types; Racz, balloon-inflatable, and radiofrequency catheter

Method

- Design : Retrospective study
- Inclusion criteria: LBP patients
 - 1) Underwent PEA
 - 2) Evaluated both VAS and ODI
- Intervention with catheter types
 - ✓ Radiofrequency catheter group (n=11)
 - ✓ Balloon-inflatable catheter group (n=12)
 - ✓ Racz catheter group (n=11)
- Primary outcome
 - ✓ Visual analog scale (VAS) score
- Secondary outcome
 - ✓ Oswestry disability index (ODI) score

Method

	A	B	C
Cannula Gaze	18G	14G	16G
Catheter thickness	1.1mm	2.0mm	2.1mm

Table 1. Cannula gaze and catheter thickness

(A) Racz catheter, (B) Balloon-inflatable catheter, (C) Radiofrequency catheter



Fig. 1. Percutaneous epidural adhesiolysis of caudal approach

(A) Racz catheter, (B) Balloon-inflatable catheter, (C) Radiofrequency catheter

Results

Table 2. Baseline demographic characteristics

	Radiofrequency (N=11)	Balloon-inflatable (N=12)	Racz (N=11)	P value
Age	66.94±9.75	61.25±15.79	70.82±14.58	0.259 ¹⁾
Sex (M:F)	5 : 6	7 : 5	7 : 4	0.676 ³⁾
VAS	5.91±1.45	5.25±1.54	5.45±1.92	0.561 ²⁾
ODI	26.27±6.81	20.75±8.29	21.00±8.74	0.336 ²⁾

Data values are given as means ± SD. 1) One-way ANOVA, 2) Kruskal-Wallis test, 3) Chi-square test, VAS: visual analogue scale, ODI: Oswestry Disability Index

Table 3. Comparison of the pain and functional scale in three group

		E1	E2	Intra P value	Inter P value
VAS	Radiofrequency (N=11)	5.91±1.45	3.36±1.75	0.003 ¹⁾ *	0.520 ³⁾
	Balloon-inflatable (N=12)	5.91±1.45	3.25±1.29	0.001 ¹⁾ *	
	Racz (N=11)	5.45±1.92	3.73±1.62	0.007 ²⁾	
ODI	Radiofrequency (N=11)	26.27±6.81	20.18±7.52	0.007 ²⁾	0.987 ⁴⁾
	Balloon-inflatable (N=12)	20.75±8.29	15.17±7.26	0.001 ²⁾ *	
	Racz (N=11)	21.00±8.74	15.64±8.04	0.001 ¹⁾ *	

Data values are given as means ± SD, 1) Paired t-test, 2) Wilcoxon signed rank test, 3) One-way ANOVA, 4) Kruskal-Wallis test, E1, pretreatment; E2, Posttreatment, *p<0.05, VAS: Visual analogue scale, ODI: Oswestry disability index

- No significant differences in baseline demographic among groups.
- Intragroup comparison
 - Significant improvement in VAS score both radiofrequency and balloon-inflatable catheter group
 - Significant improvement in ODI scores both balloon-inflatable and Racz catheter group

Conclusion

- All three groups - significant improvement in pain and functional evaluation before and after the procedure
 - ✓ Radiofrequency catheter group - the largest changes both VAS and ODI among three groups (No significant differences in intergroup differences)