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MACI Case Series With Multiple Osteochondral Defects

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Disclosures:

Deryk Jones, MD

- Active Implants: Paid presenter or speaker
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  CONMED Linvatec: Paid presenter or speaker
  DePuy, A Johnson & Johnson Company: Paid presenter or speaker
  Genzyme: Paid presenter or speaker; Research support
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  Mitek: Paid consultant; Paid presenter or speaker
  Musculoskeletal Transplant Foundation: Board or committee member; Paid presenter or speaker

Purpose

- Matrix-induced autologous chondrocyte implantation (MACI) is a regenerative procedure aimed to recreate a hyaline-like repair tissue, restoring a biologically and biomechanically valid articular surface with durable clinical results.
- The purpose of this study is to assess patient reported outcome measures (PROMS) to characterize results using the MACI graft in place of the previous ACI or CACI “sandwich” procedures.

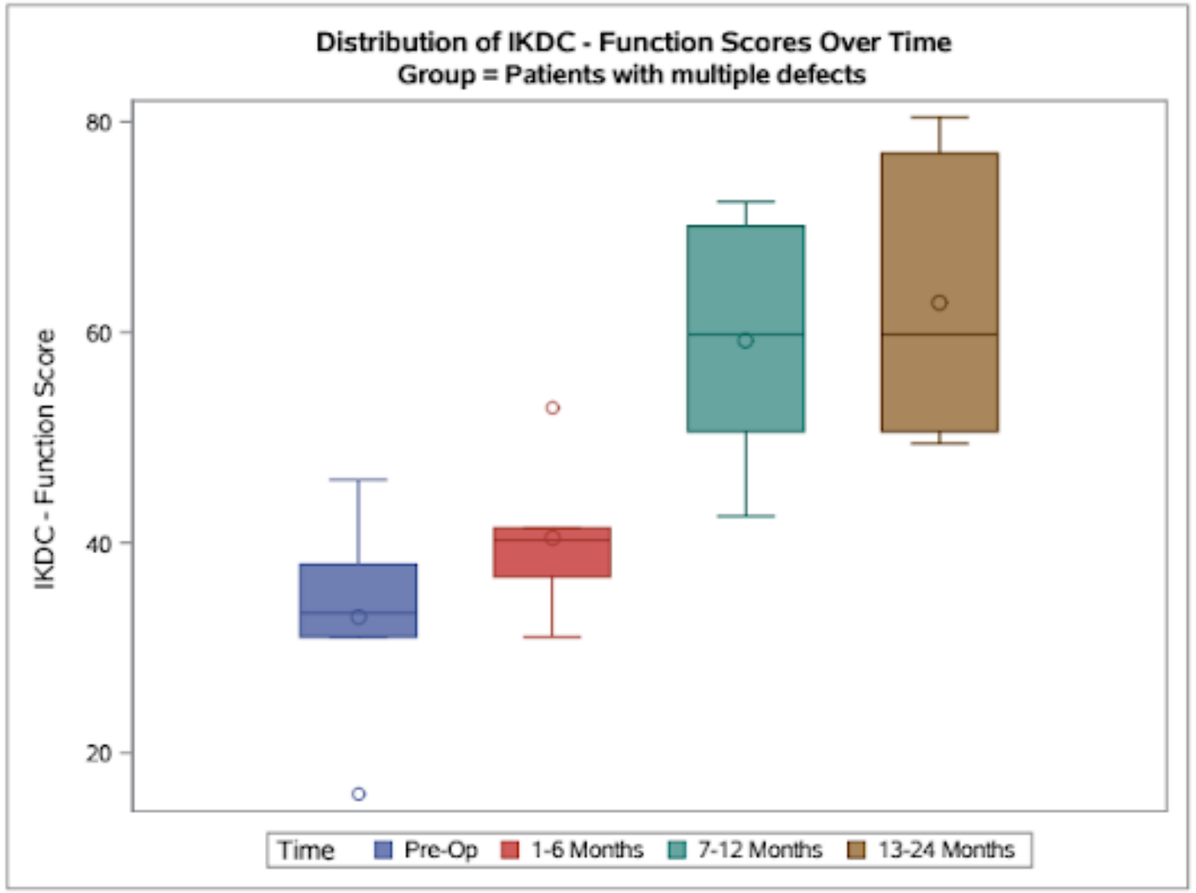
Methods & Materials

- Cohort study of prospectively collected data
- Inclusion criteria:
  - Previous MACI procedures with bony involvement, bone grafting, or sandwich technique with
  - Minimum 6-month follow-up
- Primary endpoint defined improvement of pain scores as measured at a min. 6M post-operative compared to preop
- Secondary endpoints included IKDC, KOOS, Lysholm, and SF-12 scores.
- Stats: generalized linear mixed model with a Poisson distribution and a random patient effect to account for correlations over time.
- All P-values adjusted for multiple comparisons using the Tukey-Kramer method with $\alpha < 0.05$ considered statistically significant

Results

Pre-operative and post-operative outcomes among MACI patients with multiple defects				
		Months Post-Op		
	Pre-op	1-6	7-12	13-24
Outcome	(N=6)	(N=6)	(N=6)	(N=6)
Pain Severity, mean (SD)	3.7 (2.3)	3.8 (2.1)	2.3 (1.2)	2.8 (2.6)
IKDC Function, mean (SD)	32.9 (9.8)	40.4 (7.2)	59.2 (11.5)c	62.8 (13.1)[c]
Lysholm, mean (SD)	54.7 (18.1)	56.3 (18.1)	76 (15)	80.5 (14.6)[a]
KOOS-Pain, mean (SD)	64.4 (15.6)	66.2 (20.4)	87 (9.2)	89.4 (7.7)[a]
KOOS-Symptom, mean (SD)	62.5 (22.8)	58.3 (25.1)	78.6 (17.9)	77.4 (7.7)
KOOS-ADL, mean (SD)	67.4 (27.6)	79.2 (11.6)	89.2 (14.2)	92.9 (6.7)
KOOS-Sports, mean (SD)	32.5 (30.9)	14.2 (12.4)	62.5 (23)	48.3 (26)
KOOS-QOL, mean (SD)	21.9 (21.2)	29.2 (12.3)	44.8 (24.8)	52.1 (25.8)
PSF-12, mean (SD)	35.2 (7.7)	38.3 (5.6)	40.3 (7)	45.3 (7.9)
MSF-12, mean (SD)	48.5 (7.9)	44.8 (8.5)	56.6 (10.4)	57.7 (8.3)
[a]P value < 0.05				
[b]P value < 0.01				
[c]P value < 0.001				

Results


Distribution of IKDC - Function Scores Over Time
Group = Patients with multiple defects
IKDC - Function Score
80
60
40
20
Time
Pre-Op
1-6 Months
7-12 Months
13-24 Months

Key Conclusions

- 6 patients mean age 41.8 years underwent MACI for symptomatic osteochondral lesions with mean follow up 27.2 months (14-51 months)
- Statistically significant improvements were noted at most recent follow up in 3 of 10 outcome measures
- MACI has shown some clinically relevant benefit at 2-year post-operative follow up in improving patient reported outcome measures in patients with multiple osteochondral defects

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