Outcomes Comparison between Novel Hydroxyapatite Enhanced PEEK and Titanium Implants after Anterior Lumbar Interbody Fusion

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BACKGROUND

ALIF approach has many benefits.

The hydrophobic & chemically inert properties of PEEK are associated with lower fusion potential compared to titanium.

A novel ALIF implant may mitigate the risk of nonunion.

OBJECTIVES

1. Compare **fusion rates** between 2 novel ALIF implants:

HA PEEK – hydroxyapatite infused PEEK with titanium face plate and integral screws

TIHA – titanium implant integrated with hydroxyapatite surface technology, tetracell porous structure, and integral screws

2. Compares **revision surgery rates** and changes in **ODI scores** at 1 year



METHODS

Multicenter, retrospective cohort study of prospectively collected data

23 US centers of adult ALIF/PIF ≤ 5 levels using HA PEEK or TiHA implants

Minimum 1-year follow-up

Changes in ODI scores were calculated

Fusion analysis by validated motion detection software

Fusion defined as **2**° of angular motion across flexion-extension x-rays

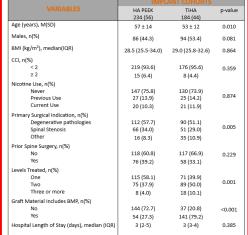
RESULTS

Differences between groups:

- HA PEEK older (57 vs. 53 yrs.)
- Primary indication
- TiHA with more multilevel cases

TiHA with more BMP use				
		IMPLANT COHORTS		
	OUTCOMES	HA PEEK	TiHA	p-valu
		234 (56)	184 (44)	
	Fusion Analysis at 6 months, n(%)			
	≤ 2 degrees	55 (88.7)	73 (96.0)	0.11
	> 2 degrees	7 (11.3)	3 (4.0)	
	Fusion Analysis at 1 year, n(%)			
	≤ 2 degrees	41 (89.1)	48 (94.1)	0.47
	> 2 degrees	5 (10.9)	3 (5.9)	
	Revision Surgery up to 1 year, n(%)			
	No	95 (96.0)	78 (96.3)	1.00
	Yes	4 (4.0)	3 (3.7)	

VIL I HODS



CONCLUSIONS



No difference in fusion rates at 6 months or 1 year



No difference in revision surgery rates at 1 year



No difference in ODI improvement at 1 year







+28.2 ± 18.0

American Association of Neurological Surgeons



Change in ODI scores at 1 year, M(SD)





+24 ± 18.0