

# COMPARISON OF 3 LUMBOPELVIC FIXATION TECHNIQUES IN LONG FUSION TO THE SACRUM IN OSTEOPOROTIC ADULT SPINAL DEFORMITY PATIENTS (>60 YRS): CLINICAL AND RADIOLOGICAL OUTCOMES

Emel KAYA, MD

Sinan KAHRAMAN, MD

Isik KARALOK, MD

Cem SEVER, MD

Yunus Emre AKMAN, MD

Yesim EROL, MD

Tunay SANLI, MA

Meric ENERCAN, MD

Azmi HAMZAOGLU, MD

*Istanbul Spine Center  
Florence Nightingale Hospital  
Istanbul-TURKEY*

EUROSPINE 2018  EURO  
SPINE 2018

19-21 SEPTEMBER, BARCELONA, SPAIN

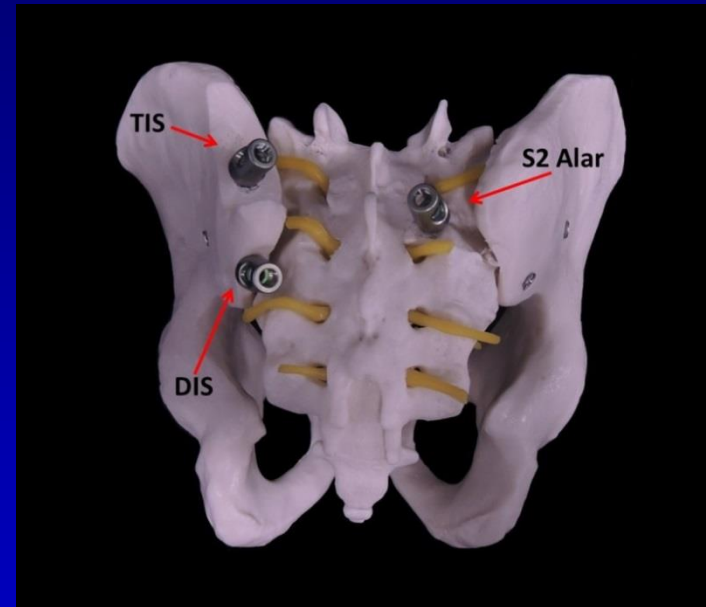
ISTANBUL  
**ISC**  
SPINE  
CENTER

# BACKGROUND

Iliac screw techniques provide additional biomechanical stabilization to S1 in long fusion to the sacrum.

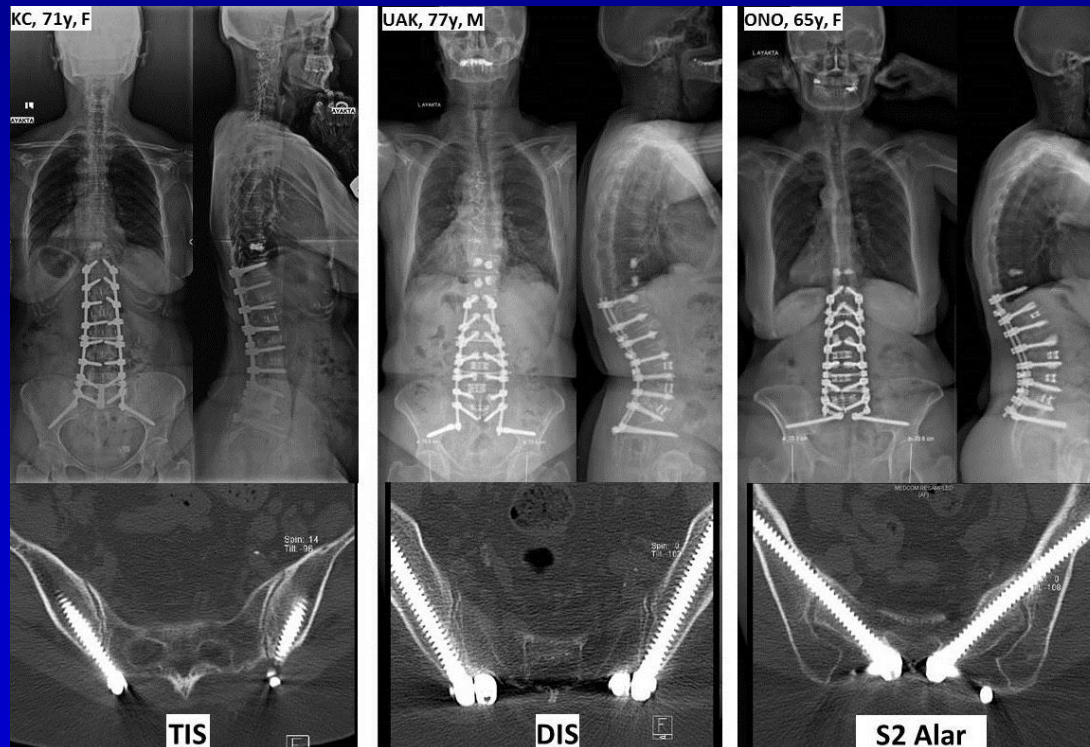
Recently S2 Alar iliac screw (S2AI) fixation became more popular than traditional iliac screw (TIS) (entry point posterior superior iliac spine), and distal iliac screw (DIS) (entry point posterior inferior iliac spine) due to the lower implant profile and need for less extensive soft tissue dissection.

S2AI fixes the sacroiliac (SI) joint differently from TIS and DIS.



# PURPOSE

This study aimed to compare the clinical and radiologic outcomes between TIS, DIS and S2AI fixation in osteoporotic adult spinal deformity patients.



# MATERIAL & METHODS

- 158 (103f, 55m) adult spinal deformity patients who underwent long fusion to the sacrum with 3 different iliac screw techniques (TIS, DIS, S2AI) were reviewed.
- Radiologic parameters were compared between preop and f/up standing x-rays.
- Hospital charts and f/up CT scans were used to compare
  - Screw lengths
  - Diameters
  - Implant related complications
    - S1 and iliac screw loosening
    - Rod breakage
    - Sacroiliac joint dissociation (SID)
    - Surgical site infections (SSI)
    - Hematoma.
- ODI scores were compared for clinical assessment.

# RESULTS

**TIS**

**54 patients**

**DIS**

**51 patients**

**S2AI**

**53 patients**

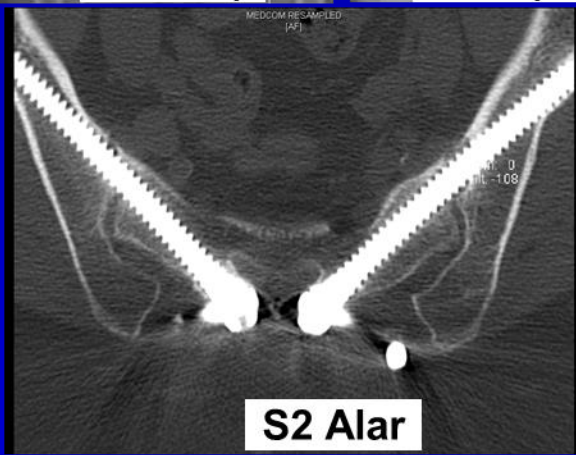
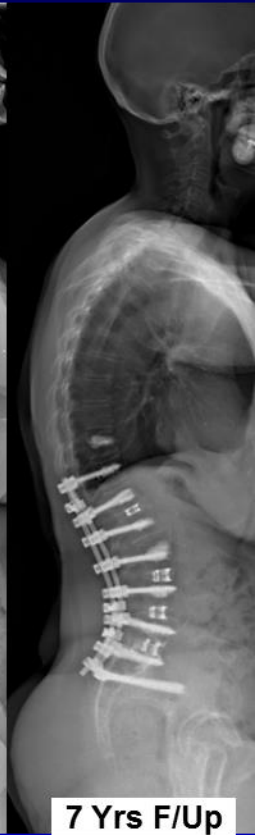
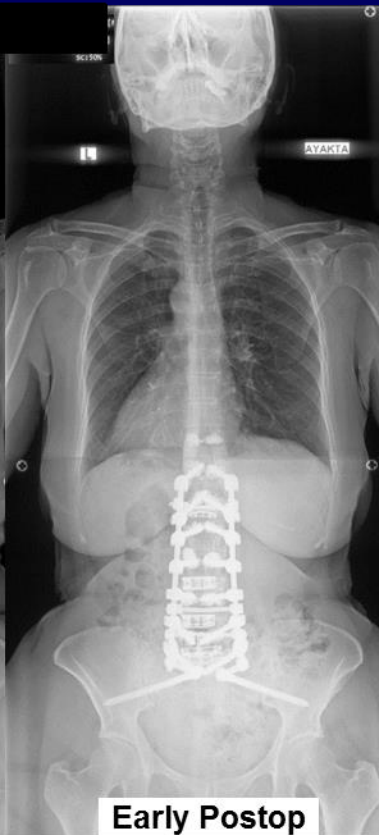
- Mean ages were 67 (TIS), 71(DIS), 68(S2AI).
- Mean f/up was 54.2(24-174) months.
- Iliac screw lengths were 85 mm, 90 mm, 105 mm; diameters were 9.0mm, 8.5mm, 9.5mm for TIS, DIS, S2AI respectively.

# RESULTS

- There were 7 patients (12.9%) in TIS, 6 patients (11.7%) in DIS and 3 patients (5.6%) in S2AI with implant related complications.
- 1 patient (1.8%) in TIS and 1 patient(1.9%) in DIS group showed SID (TIS=1,DIS=1,S2AI=0).
- Postop hematoma was detected in 14 patients(8.8%) (TIS=4, DIS=7, S2AI=3) and SSI developed in 2 patients(1.2%)(TIS=1, DIS=1, S2AI=0).
- ODI scores improved in all groups.

	Iliac Screw Technique			Total (TIS + DIS) (n=105)	S2AI (n=53)
	TIS (n=54)	DIS (n=51)			
Age	67 (60-83)	71 (63-92)		69 (60-92)	67 (63-83)
Hematoma	4 (7.4%)	7 (13.7%)		11 (10.4%)	3 (5.7%)
Surgical site infection	1 (1.8%)	1 (1.9%)		2 (1.9%)	0
Implant related complication	7 (12.9%)	6 (11.7%)		13 (12.3%)	3 (5.7%)
Sacroiliac joint dissociation	1 (1.8%)	1 (1.9%)		2 (1.9%)	0

**ONO, 65y, F**

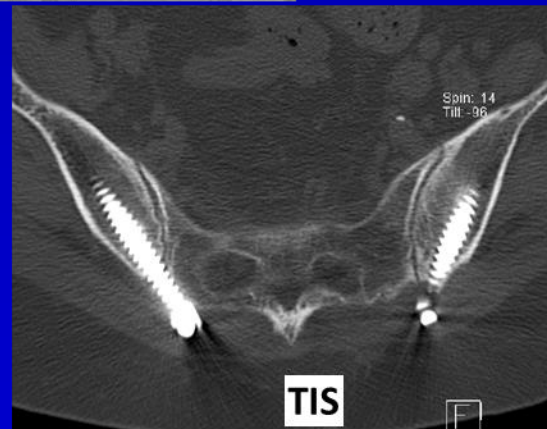
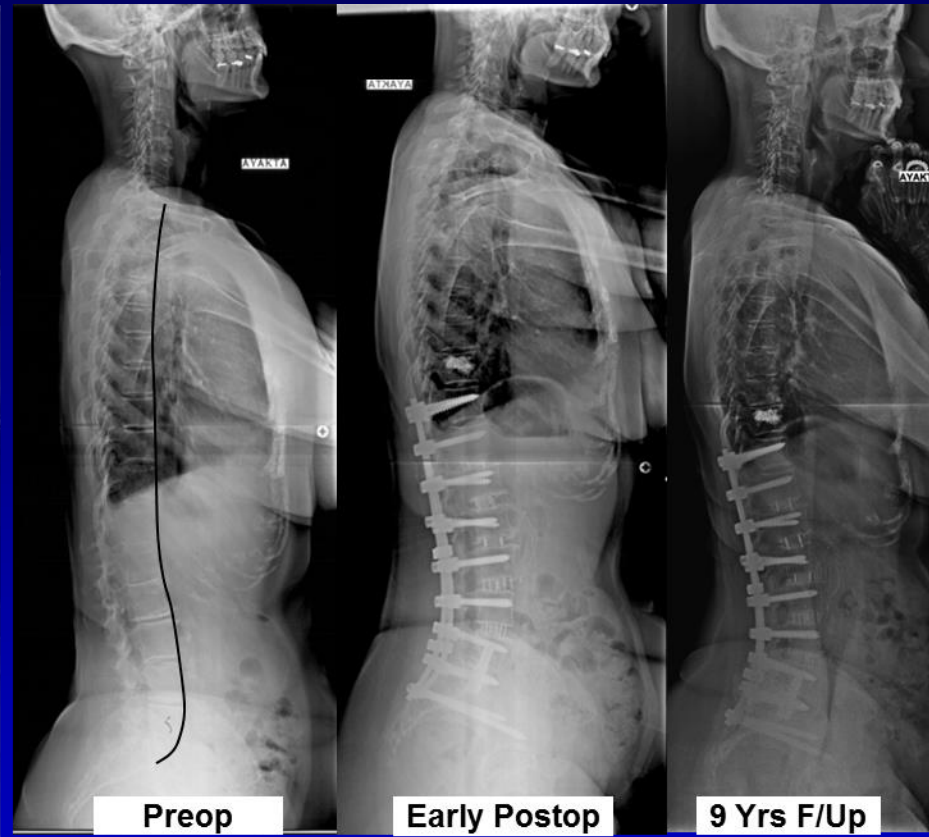
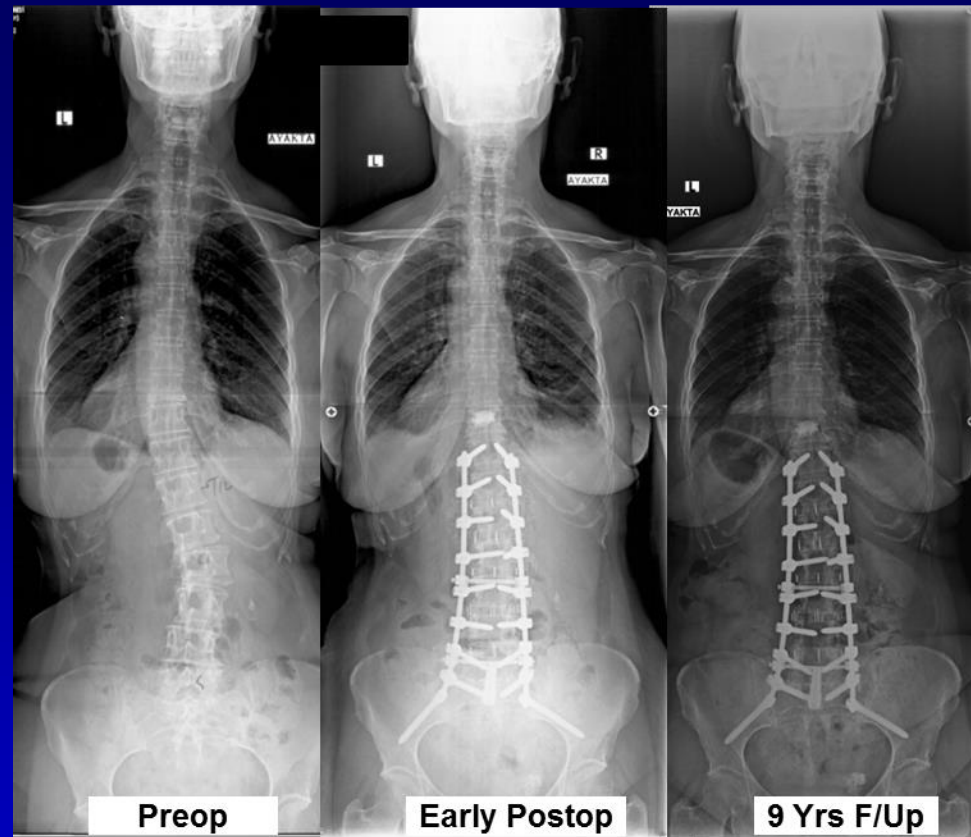


# UAK, 77y, M





KC, 71y, F



# CONCLUSION

**All techniques provided sufficient stability for lumbosacral fusion in adult spinal deformity patients.**

**S2 Alar iliac screw technique showed lower implant related complication rates when compared to both iliac screw techniques.**

# CONCLUSION

**Traditional iliac screw and Distal iliac screw had higher rates of hematoma and surgical site infections due to extensive soft tissue dissection compared to S2 Alar iliac screw.**

**S2 Alar iliac screw does not lead to sacroiliac joint dissociation as it provides stability by fixing the sacroiliac joint.**

## P30 - COMPARISON OF 3 LUMBOPELVIC FIXATION TECHNIQUES...

### Author

Emel KAYA

Sinan KAHRAMAN

Isik KARALOK

Cem SEVER

Yunus Emre AKMAN

Yesim EROL

Tunay SANLI

Meric ENERCAN

Azmi HAMZAOGLU

### Relationships Disclosed

No Relationship

No Relationship

No Relationship

No Relationship

No Relationship

No Relationship

No Relationship

No Relationship

Medtronic (a, b)

- (a) Grants/Research Support
- (b) Consultant
- (c) Stock/Shareholder
- (d) Royalties
- (e) Other Financial Support