

Usage of Casting and Halo Traction by Pediatric Orthopaedic Surgeons

Nicholas D. Fletcher, MD

A. Noelle Larson, MD

B. Stephen Richards, MD

Charles E. Johnston II, MD

Emory Orthopaedic and Spine Center
Texas Scottish Rite Hospital for Children

Hypothesis

- Non-operative treatment of idiopathic early onset scoliosis is declining
- Limited access to casting tables and halo gravity traction devices may result in decreased use

Purpose

- To evaluate current trends in management of idiopathic early onset scoliosis using a survey-based approach

Methods

- POSNA members
- Survey Monkey
- 10 question survey
 - Training/practice
- Part 1 – Use of casting/traction equipment
- Part 2 – Case scenarios of **idiopathic** EOS

Results

Demographics

- 195 (19.6%) of POSNA responded to two distributions
- 91.3% Fellowship trained
- 94.9% Manage scoliosis
 - 84.8% operative
 - 93.8% treat EOS

Surgeon Usage

- Bracing – 89.1%
- Casting -62%
 - 66.8% had available
- Halo traction – 27%
 - 77% had available
- Growing Rods – 62%
- Chest Wall Expansion – 39.1%

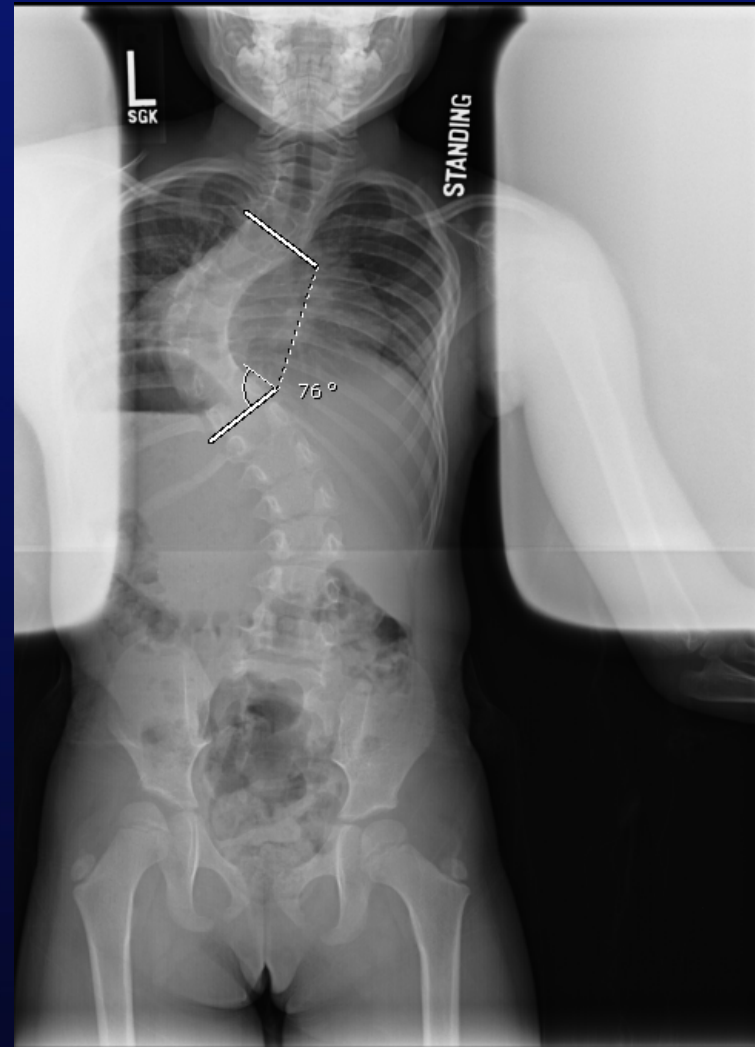
Treatments Used by Hospital-Type

I often use:	University n=83	Peds Ortho n=39	Private/Comm N=70
Casting	45 (54%)	28 (72%)	40 (36%) P = 0.87
Bracing	69 (83%)	33 (85%)	60 (86%) P = 0.67
Growing Rods	46 (62%)	30 (81.1%)	39 (55%) P = 0.71
Chest-wall Device	37 (45%)	22 (56%)	13 (19%) P <0.0001
Halo	23 (43%)	20 (51%)	6 (9%) P <0.0001

Case Scenarios

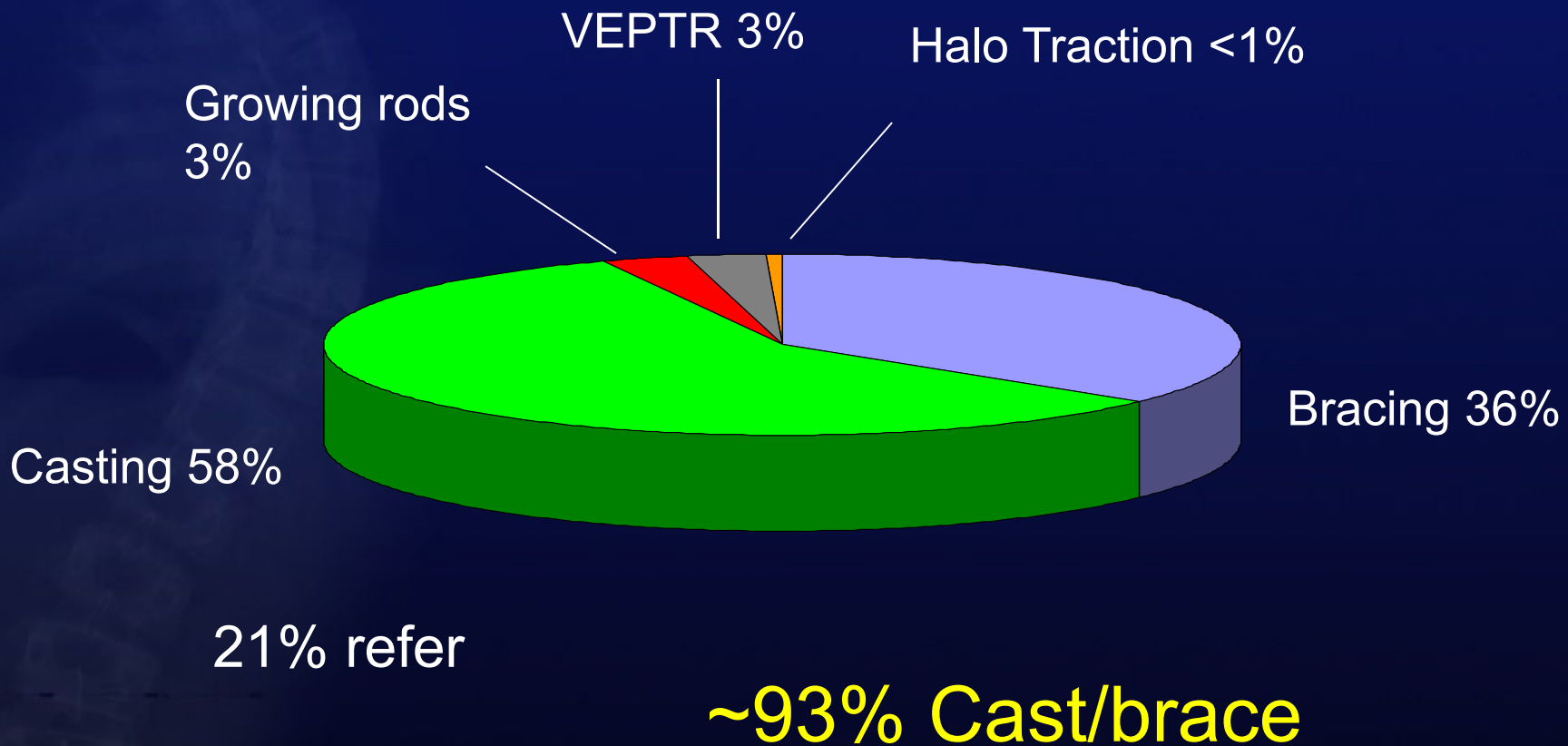


2 yo – 50 ° curve, RVAD >20°

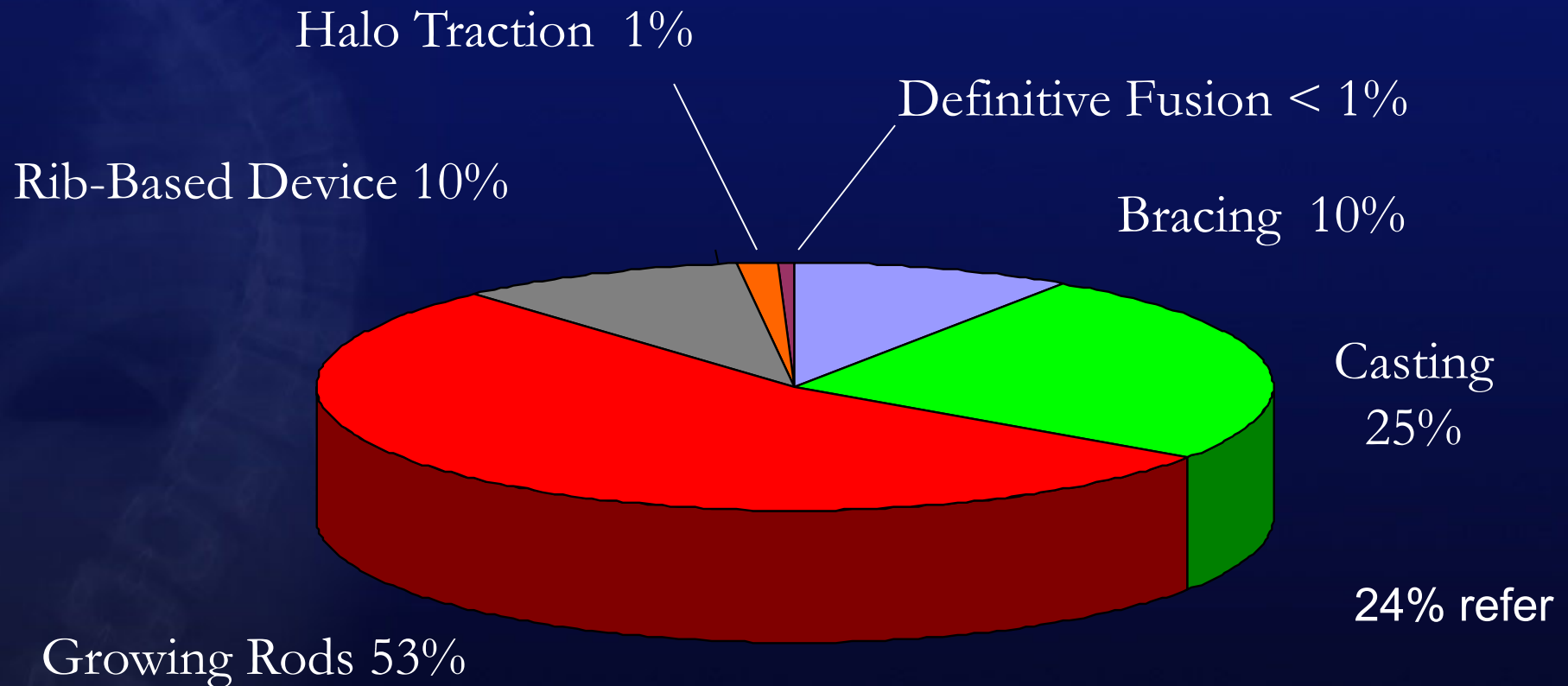


5 yo - 70 ° curve RVAD >20 °

Initial Management of 2 yo with 50° Scoliosis



Initial Management of 5 yo with 70° Scoliosis



Non Operative – 36%

Operative – 64%

Physicians who opted to treat 5 y.o. (Referrals excluded)

	University n=64	Peds Ortho n=31	Private/Comm n=51
Non-Operative Treatment	19 (30%)	15 (48%)	17 (33%)
Operative Treatment	45 (70%)	16 (52%)	34 (67%)
			P = 0.86

Casting at Peds Ortho Hospitals

Physicians at dedicated pediatric hospitals more frequently chose casting:

- For 2 yo child, 63% chose casting (vs. 42% at other practice settings) $P = 0.047$
- For 5 yo child, 35% chose casting (vs. 15% at other practice settings) $P = 0.0052$

Conclusions

- Surgical management more popular for larger curves but bracing/casting still used in smaller curves
- Limited access to casting tables and halo gravity traction devices may result in decreased use?
 - If you don't have halo traction, less likely to use it!
 - Halo traction and chest wall devices less frequently used in private practice
 - If you don't have casting table, less likely to use it!
 - Casting more frequently used in dedicated peds ortho hospitals

Discussion

- **Mehta 2005**
 - 35% of curves in older children (30 mo) with bigger curves (Avg 52°) fused by age 11
- **Success of delay vs failure of treatment???**
 - Akbarnia 2008 – 3.8-6.3 lengthenings (4-15) total surgeries in 13pts treated with growing rods
 - Emans 2005 – 3.5 lengthening in 31 pts with 2.6 yr f/u treated with VEPTR