

RELATIONSHIP OF PENILE CURVATURE TYPE AND PENILE VASCULAR STATUS IN MEN WITH PEYRONIE'S DISEASE

Muammer Kendirci, Sepehr Nowfar, Serap Gur,
Dena Walsh, Suresh C. Sikka,
Wayne J.G. Hellstrom

Department of Urology
Tulane University Health Sciences Center
New Orleans, Louisiana

Introduction

- PD prevalence: 3.2% [1]
- 16% detected during ED work-up [2]
- ED rate in PD: 4 - 80% [3,4,5]
- The cause of ED in PD was suggested to be penile vascular abnormalities (61 - 70%) [4-7]

PDDU;

1. The preferred method for the functional evaluation of the penile vascular system; [8]
2. Allows individualization of PD patients for surgical therapy [7]

[1]Schwarzer et al, BJU Int 2001

[4]Lopez et al, J Urol 1993

[7]Brock et al, Urology 1993

[2]Kadioglu et al, IJIR 2004

[5]Jarow et al, J Urol 1997

[8]Lue et al, Radiology 1985

[3]Weidner et al, J Urol 1997

[6]Montorsi et al, J Urol 1994

Introduction

How does the type of curvature affect penile hemodynamics?

Aim:

- To determine if there is a relationship between the type of penile deformity and vascular status in a large number of PD patients.

Materials & Methods

- 523 patients; 1992 - 2003
 - * *A detailed sexual & medical history*
 - * *Focused PE*
 - * *Lab testing (BG, Lipids)*
- Co-morbidities
- Hx penile trauma or bending

EF:

- Subjective questionnaire (1992 - 1997)
- IIEF-EF domain (Since 1997)

Materials & Methods

PDDU:

10-15 μ g PGE1 & VSS

Penile curvature:

Using a protractor

Plaque size:

A hand-held caliper & US

Materials & Methods

- Certain values for different vascular abnormalities [1,2,3,4]
 - * AI: $PSV < 25$ cm/sec
 - * Borderline AI: 25 - 30 cm/sec
 - * VOD: $PSV \geq 30$ cm/sec, $EDV > 5$ cm/sec, $RI < 0.8$
 - * Mixed: $PSV < 25$ cm/sec, $EDV > 5$ cm/sec, $RI < 0.8$
 - * NV: $PSV \geq 30$ cm/sec, $EDV \leq 5$ cm/sec, $RI > 0.8$

[1]Lee et al J Urol 1993

[2]Rhee et al, J Urol 1995

[3]Montorsi et al, J Urol 1994

[4]Wilkins et al, Clin Radiol 2003

Materials & Methods

Penile deformity classification:

- Dorsal
- Ventral
- Lateral
- Dorsolateral
- Ventrolateral
- Indentation
- Hourglass

Materials & Methods

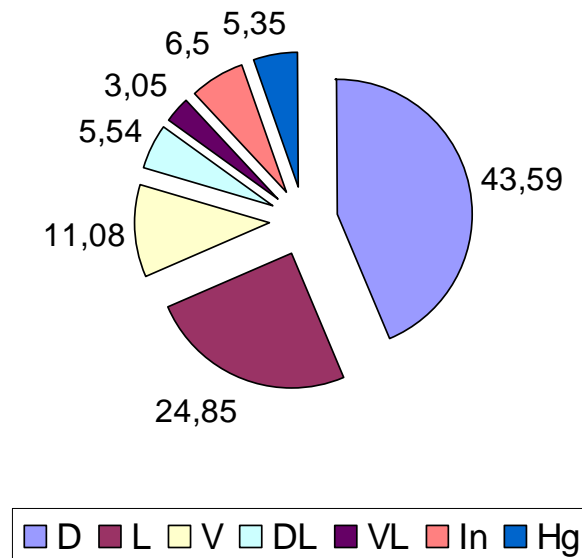
Statistics:

- ANOVA
- Ryan-Einot-Gabriel-Welsch Multiple Range test
- Kruskal Wallis test
- Pearson's chi-square test

Mean \pm SEM

Results

The rate of deformity



N = 523

Results

Direction	Age (years) (Mean±SEM)	Duration (m) Median
Dorsal	55.2±0.7	12,0
Lateral	53.6±0.8	12,0
Ventral	56.0±1.4	12,0
Dorsolateral	56.4±1.7	15,0
Ventrolateral	56.7±2.2	12,0
Indentation	49.7±2.3 *	12,0
Hourglass	47.4±1.8 *	12,0

* P < 0.0001

P = 0.86

Median: 55 years

Results

Number of co-morbidities		
Direction	Mean+SEM	Median
Dorsal	1.24+0.07	1
Lateral	1.20+0.11	1
Ventral	1.40+0.15	1
Dorsolateral	1.66+0.25	2
Ventrolateral	0.50+0.16 *	0
Indentation	1.82+0.29	2
Hourglass	1.07+0.19	1

* P =0.0048

Results

Penile Trauma	
Direction	%
Dorsal	17
Lateral	15
Ventral	26
Dorsolateral	14
Ventrolateral	7
Indentation	18
Hourglass	6

Results

Direction	Degree of deformity			
	Curvature (mean±SEM)	<30° (%)	30-60° (%)	>60° (%)
Dorsal	42.5±1.6	29	52	19
Lateral	38.0±2.0	33	52	15
Ventral	47.7±3.2 *	24	50	26
Dorsolateral	42.7±3.8	21	65	14
Ventrolateral	39.1±3.7	19	75	6
Indentation	12.8±1.0 **	11	0	0
Hourglass	12.5±2.5 **	7	0	0

* P = 0.0059

** P = 0.0020

Results

Plaque size & pain on erection				
Direction	Plaque size			Pain on erection
	Small	Medium	Large	
Dorsal	(%)	(%)	(%)	(%)
Lateral	62	31	7	19
Ventral	67	25	8	15
Dorsolateral	58	28	4	19
Ventrolateral	46	46	8	10
Indentation	90	10	0	25
Hourglass	78	12	0	12

P = 0.31

P = 0.64

Results

Erectile Dysfunction	
Direction	(%)
Dorsal	56
Lateral	52 *
Ventral	65
Dorsolateral	79
Ventrolateral	75
Indentation	70
Hourglass	61

* P = 0.0469

Overall 60%

Results

Direction	PSV-R	EDV-R	PSV-L	EDV-L
Dorsal	33.5±0.8	3.9±0.4	31.3±0.8	3.4±0.4
Lateral	31.8±1.0	2.8±0.4	31.4±2.4	2.4±0.4
Ventral	33.8±1.7	5.4±0.9	32.4±1.7	4.7±0.9
Dorsolateral	36.3±2.2	3.0±1.0	32.9±1.7	3.4±1.0
Ventrolateral	42.7±3.3 *	1.8±1.0	40.5±2.7 *	1.4±1.0
Indentation	34.3±2.4	2.9±0.9	31.4±2.1	2.6±0.8
Hourglass	28.4±2.3**	2.0±0.8	28.7±1.0 **	3.0±0.9

* P = 0.0078

** P = 0.0088

Results

Direction	Vascular Abnormalities				
	AI	bAI	VOD	MVD	NVS
	(%)	(%)	(%)	(%)	(%)
Dorsal	21,49	7,46	24,12	4,39	42,54
Lateral	22,31	13,85	18,46	5,38	40
Ventral	18,97	3,45	34,48	8,62	34,48
Dorsolateral	17,24	10,34	20,69	3,45	48,28
Ventrolateral	0	6,25	6,25	6,25	81,25
Indentation	20,59	5,88	20,59	5,88	47,06
Hourglass	39,29	3,57	10,71	7,14	39,29

Conclusion

	Freq (%)	Age Y/O	Comb (n=)	Ptrv (%)	Curv (°)	ED (%)	PSV cm/s	AI (%)	VOD (%)	NV (%)
Dorsal	↑									
Lateral						😊				
Ventral				↑	↑				↑	
Dorsolateral										
Ventrolateral	↓		↓				↑			↑
Indentation					↓					
Hourglass		↓		↓	↓		↓	↑		

There is a relationship between the type of penile deformity and penile hemodynamics based upon our results.