

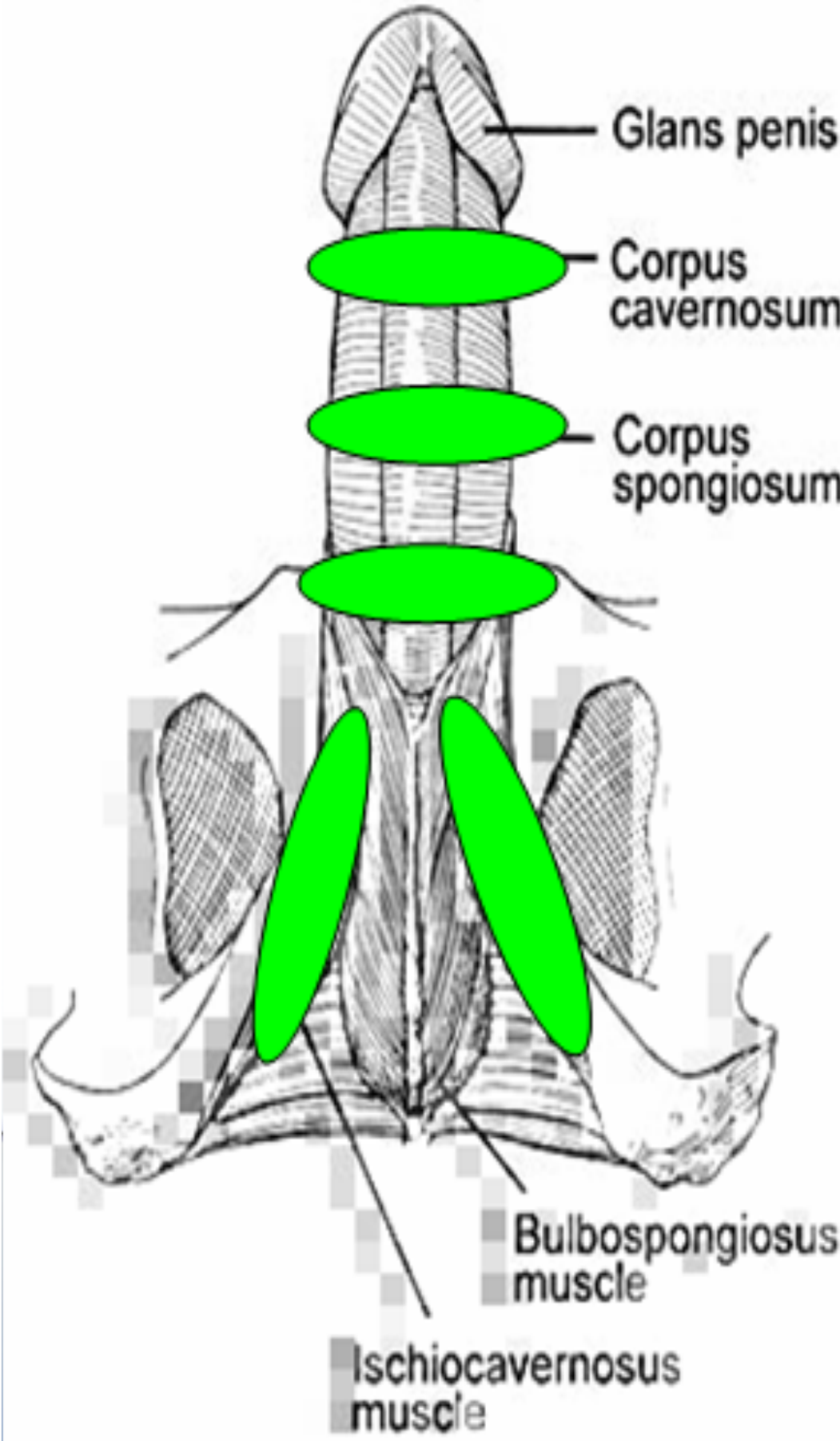
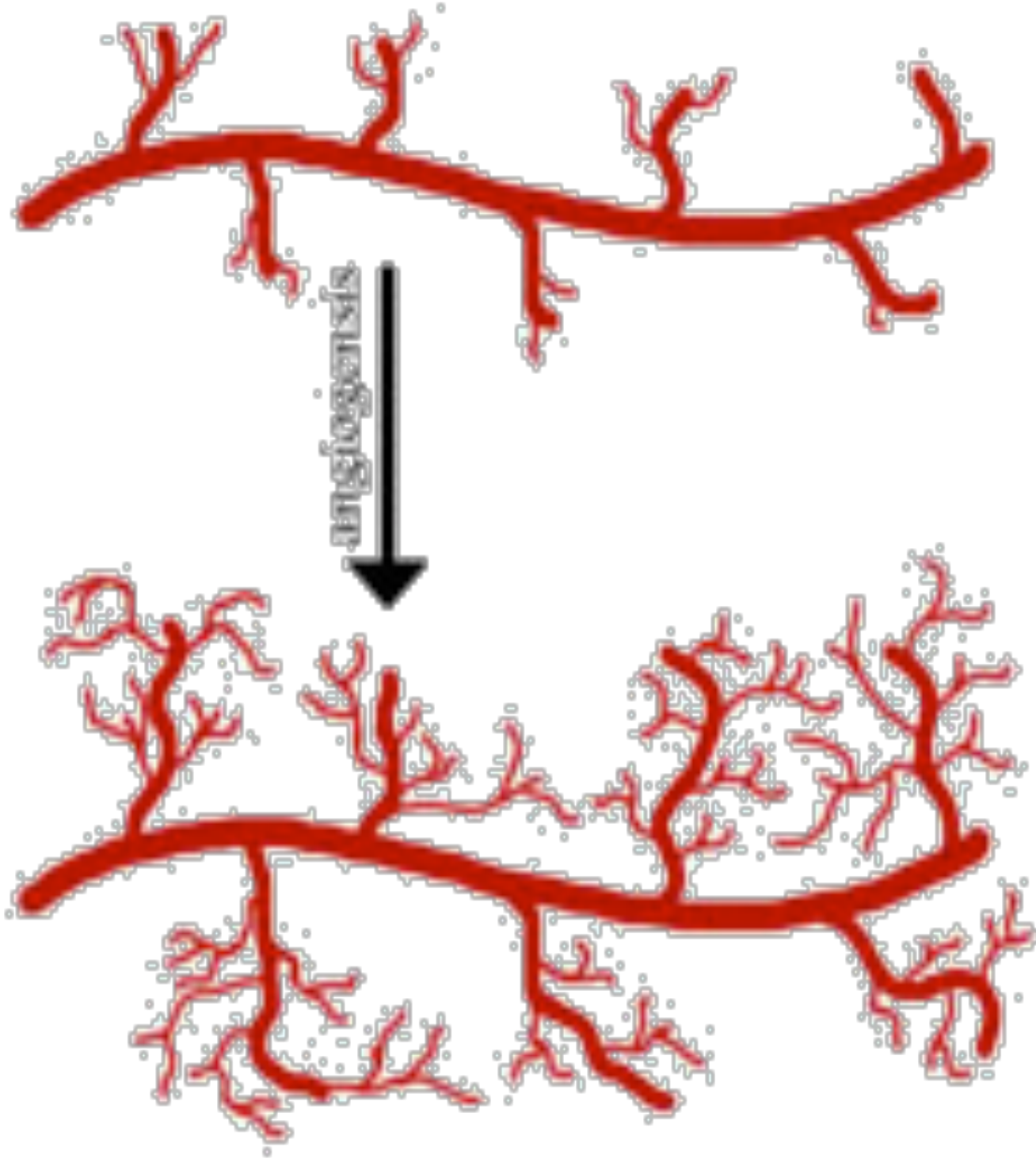
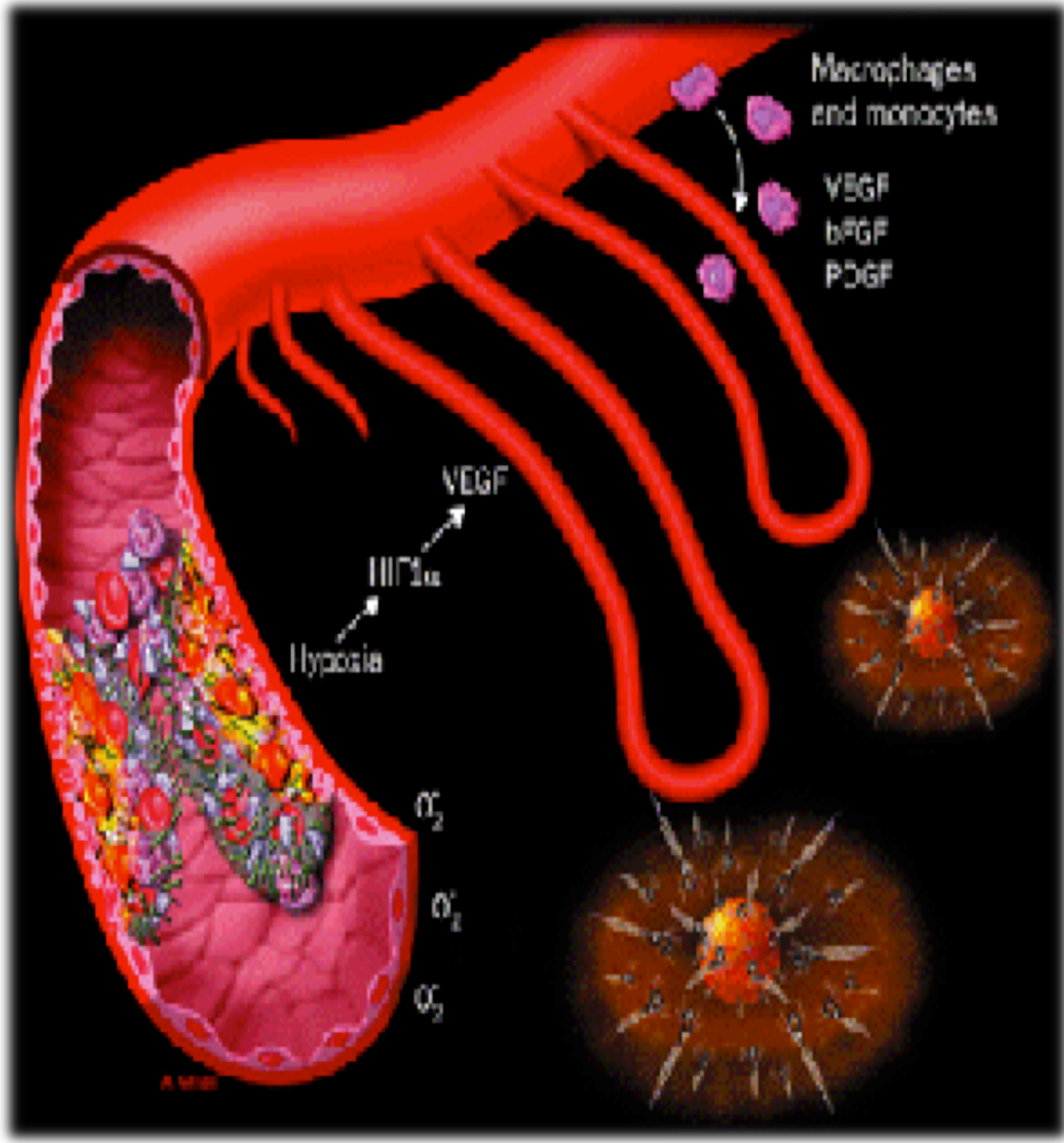
## OBJECTIVES OF THE CURRENT STUDY:

Our aim was to evaluate the efficacy of EDSWT on men with ED and analyze its role in the management of ED.

## BACKGROUND:

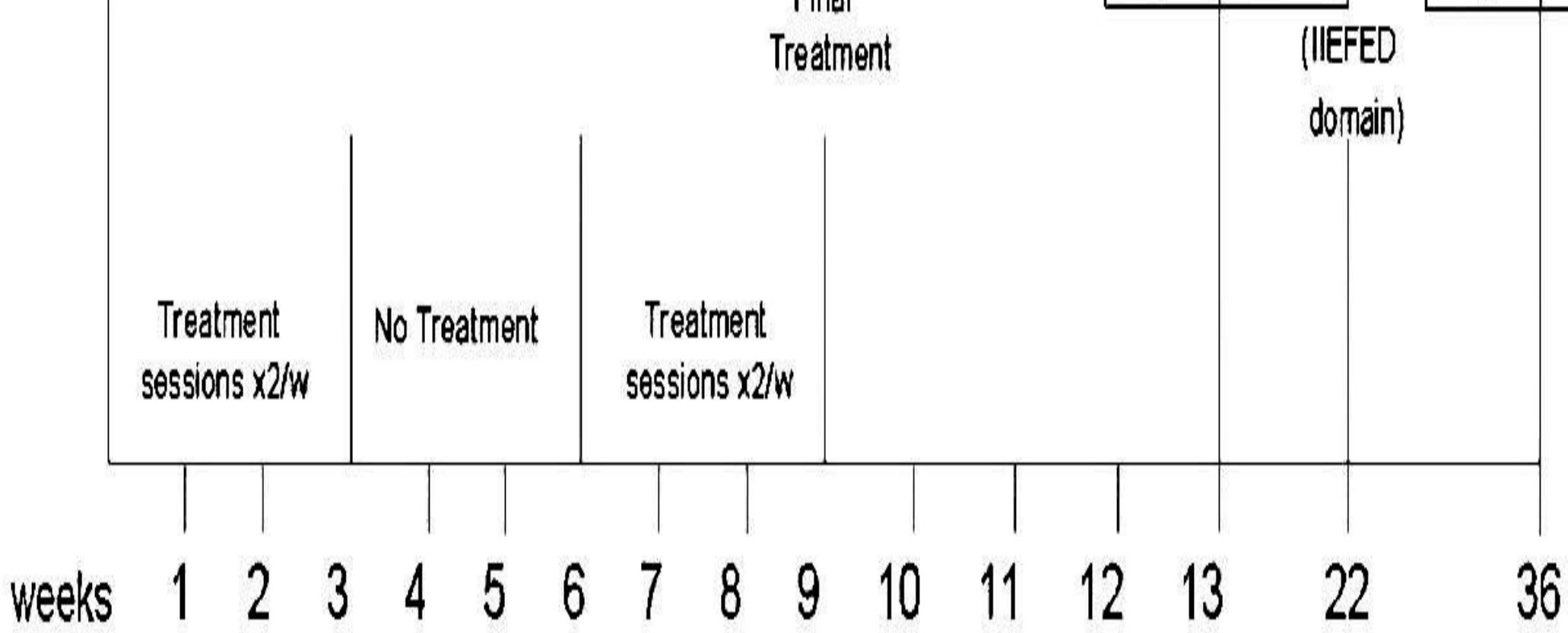
Erectile dysfunction shockwave therapy (EDSWT) has brought new hope in the management of Erectile Dysfunction(ED). Its role in treatment of ED has not been established to date, however its application in different medical disciplines owing to its property of neovascularisation has proved its worth.

## SHOCK WAVE THERAPY – MECHANISM, PRINCIPLES AND OUR PROTOCOL OF APPLICATION



### Baseline assessment

(IIEF, QEQ, SEAR, RS, NPT and PD)



## Methods & Materials

We conducted a double- blind randomized placebo controlled study. A total of 60 patients diagnosed to have arteriogenic erectile dysfunction who had International Index of Erectile Function ED (IIEF-ED) domain scores between 3 and18 (average: 7.85) and abnormal nocturnal penile tumescence (NPT) parameters were enrolled for the study. Follow up assessments with IIEF- ED questionnaire and doppler ultrasound examinations were done at 3 and 6 months periods.

## Main Outcome Measures:

Various validated sexual function questionnaires: International Index of Erectile Function (IIEF), rigidity scores (RS), Quality of Erection Questionnaire (QEQ), and the Self-Esteem and Relationship Questionnaire (SEAR) formed the subjective evaluation and Doppler ultrasound outcomes formed the objective evaluation.

## Results

Changes in various sexual function questionnaires before and 6 months after undergoing Erectile dysfunction shockwave therapy.

Variables	Intervention	Study group	Controls
IIEF SCORE -ED DOMAIN	Pre-procedure	8.73 ± 2.53	8.92 ± 2.94
	Post-procedure	24.44 ± 3.45	9.17 ± 2.55
	P value	<0.001	0.536
Total IIEF	Pre-procedure	36.4 ± 4.71	38.6 ± 5.23
	Post-procedure	59.6 ± 9.45	44.2 ± 7.84
	P value	<0.001	0.421
QEQ	Pre-procedure	24.7 ± 9.22	22.4 ± 8.64
	Post-procedure	62.6 ± 12.58	26.3 ± 9.16
	P value	<0.001	0.189
RS	Pre-procedure	1.3 ± 0.8	1.4 ± 0.6
	Post-procedure	3.7 ± 1.4	1.2 ± 0.7
	P value	<0.001	0.594
SEAR	Pre-procedure	31.4 ± 8.34	33.2 ± 7.12
	Post-procedure	49.8 ± 10.72	32.4 ± 7.05
	P value	<0.001	0.396

Distribution of Co morbid conditions among Cases and Controls.

Co morbid conditions	Number of Cases (n=48)	%	Number of Controls (n=12)	%
DM	20	41.67	4	33.33
HTN	21	43.75	5	41.67
Abnormal lipids	9	18.75	2	16.67
Smoking	21	43.75	6	50.0
Alcohol	14	29.17	4	33.33
IHD	1	2.08	0	0.0
Anxiety	0	0.0	0	0.0

Changes in nocturnal penile tumescence parameters before and 6 months after Erectile dysfunction shockwave therapy.

Parameter	Study Group:		P value	Control:		P value
	Baseline (mean ± SD)	1 month after treatment (mean ± SD)		Baseline (mean ± SD)	1 month after treatment (mean ± SD)	
Total number of erection	2.1 ± 0.8	4.2 ± 1.6	<0.001	2.4 ± 1.1	2.3 ± 1.0	0.527
Total erection time, hour	1.1 ± 0.5	1.5 ± 0.8	<0.001	1.2 ± 0.4	1.1 ± 0.5	0.153
Average tip rigidity	28.7±10.6	43.8 ± 12.5	<0.001	31.2 ± 9.4	33.2 ± 8.2	0.294
Average base rigidity	32.4 ± 8.4	51.8 ± 18.3	<0.001	33.8 ± 9.2	32.7 ± 8.8	0.681
Max rigidity best event, tip	34.9±11.2	57.5 ± 18.2	<0.001	35.7±12.8	34.8±10.7	0.228
Max rigidity best event, base	37.4±12.1	60.4 ± 20.4	<0.001	35.9 ±11.7	36.5 ±9.2	0.319

Comparison of Penile Doppler evaluation before and 6 months after undergoing Erectile dysfunction shockwave therapy.

Variables	Intervention	Study group (n=48)	Controls (n=12)	P value
Penile Doppler-PSV	Pre-procedure	19.54±2.03	18.09±1.49	0.025
	Post-procedure	18.98±1.77	18.18±1.55	0.152
	P value	<0.001	0.064	
	Pre-procedure	0.065±0.19	0.033±0.11	0.602
Penile Doppler-EDV	Post-procedure	0.00	0.033±0.12	0.045
	P value	0.026	-	
	Pre-procedure	0.55±0.06	0.56±0.08	0.759
	Post-procedure	0.45±0.05	0.54±0.08	<0.001
Penile Doppler- Vessel wall thickness	P value	<0.001	0.166	
	Pre-procedure	1.46±0.09	1.49±0.08	0.181
	Post-procedure	1.56±0.09	1.48±0.08	0.016
	P value	<0.001	0.007	
Penile Doppler- Vessel wall circumference	Pre-procedure	0.083±0.27	0.42±0.51	0.003
	Post-procedure	0.19±0.39	0.42±0.51	0.096
	P value	0.024	-	
	Pre-procedure	0.0	0.0	-
Penile Doppler- No of 1st order branches	Post-procedure	0.0	0.0	-
	P value	-	-	
	Pre-procedure	0.91±0.05	0.96±0.05	0.020
	Post-procedure	0.88±0.05	0.97±0.05	<0.001
Penile Doppler- Resistivity index	P value	<0.001	0.027	
	Pre-procedure	0.99±0.09	0.99±0.05	0.822
	Post-procedure	0.92±0.05	1.01±0.06	<0.001
	P value	<0.001	0.109	
Penile Doppler- Pulsatility index	Pre-procedure	1.23±0.42	1.25±0.45	0.881
	Post-procedure	3.85±0.36	1.25±0.45	<0.001
	P value	<0.001	-	

## Results:

We evaluated 60 middle-aged men (average age: 39.2 yr) with arteriogenic ED (mean duration: 2.08 years).

At 6 months of follow-up period, significant increases in IIEF-ED domain scores were recorded in all men (23.30±3.37 vs 7.85±2.68, p < 0.001).

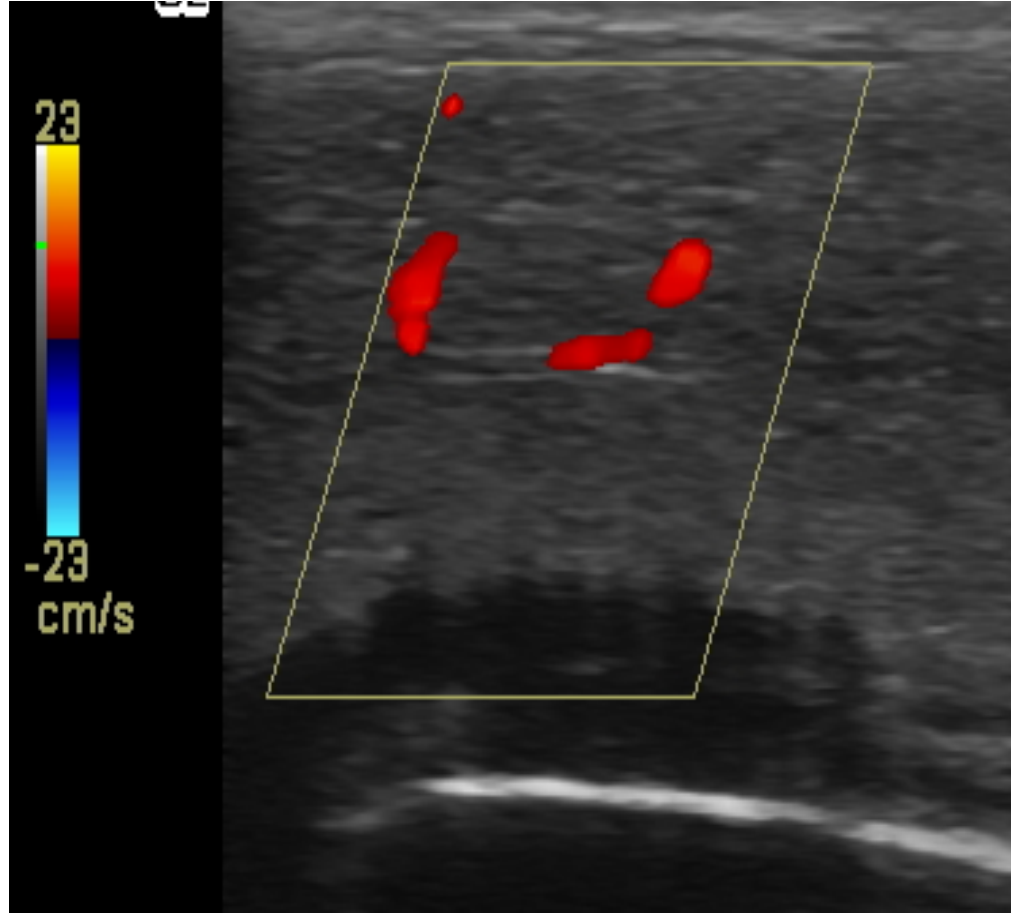
Significant increases in duration of erection and penile rigidity were also recorded.

Doppler ultrasound study objectively recorded the improvement in various parameters.

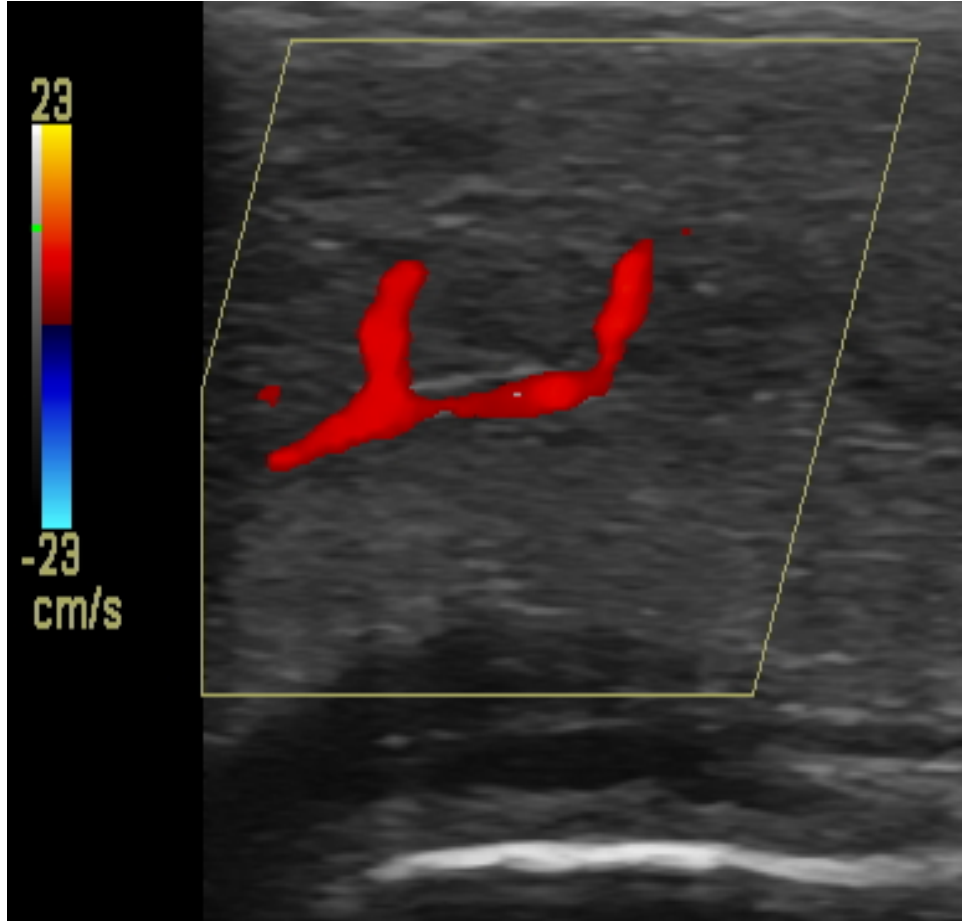
No adverse events were noted during follow-up.

## Images of Penile Doppler before and 6 months after undergoing Erectile dysfunction shockwave therapy

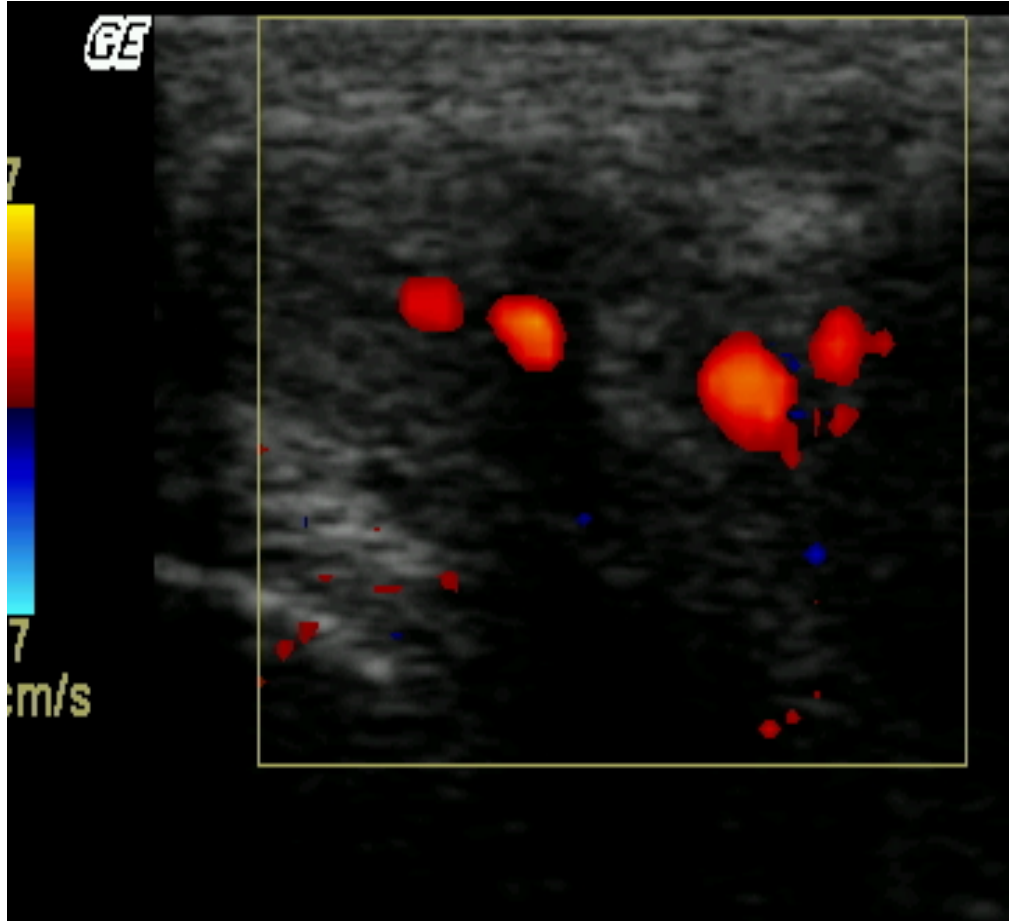
### Pre- Procedure



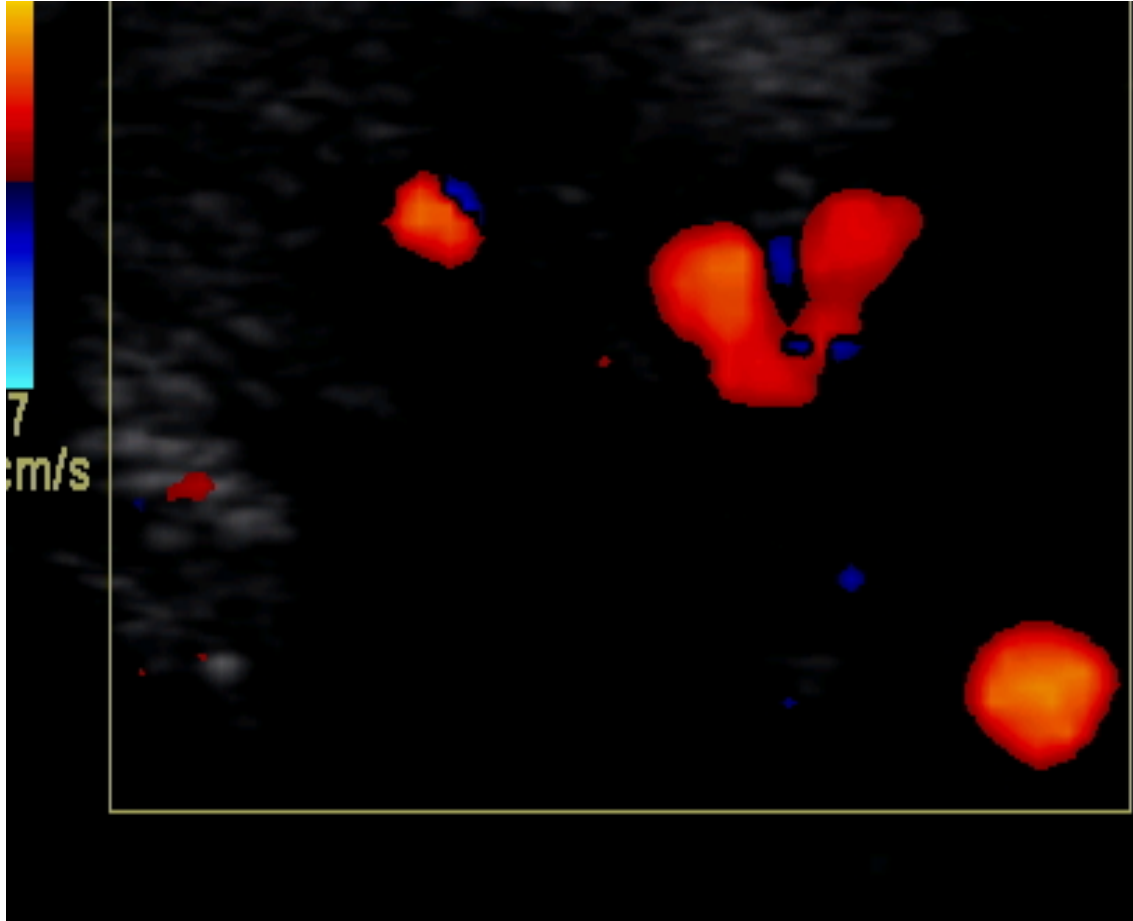
### Post- Procedure



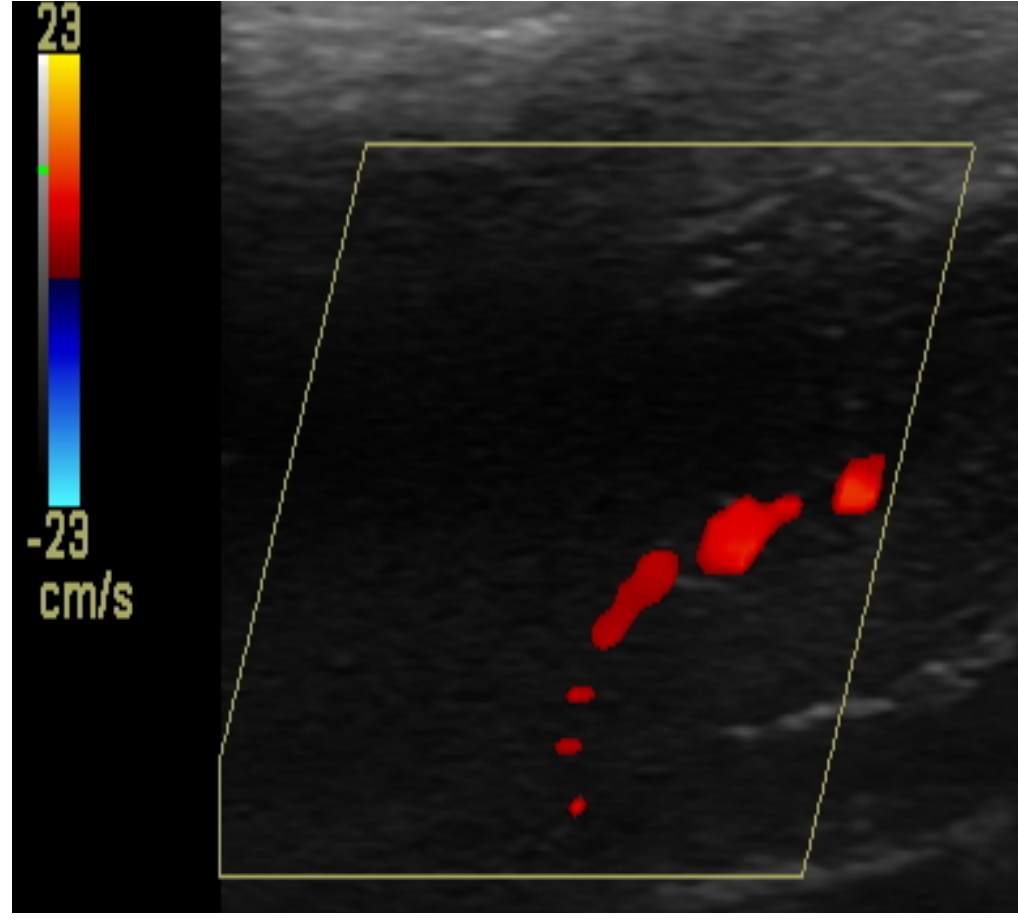
### Pre- Procedure



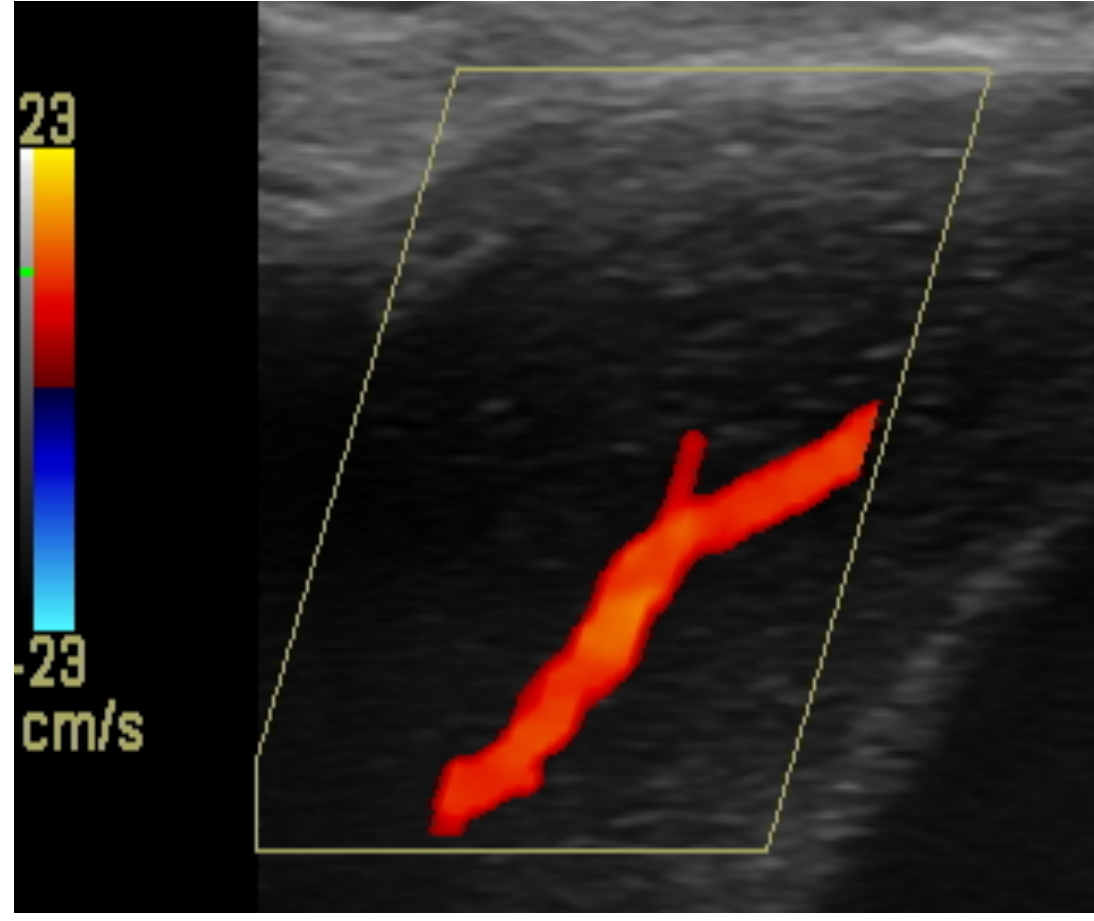
### Post- Procedure



### Pre- Procedure



### Post- Procedure



**CONCLUSIONS:** This treatment modality has shown promising results in its efficacy of improvement of erectile function and the fact that the effects were natural, long lasting and measurable improvement gives a hope in attainment of a possible cure to ED.