

Table 2. Hemodynamic Evaluation of Penile Blood Flow of Patients with Erectile Dysfunction Using Duplex Doppler After Intracavernous Injection of PGE₁

Etiology	Clinical observations		Peak velocity (cm/s)		Resistance index	
	Rigidity	Erection	Rt	Lt	Rt	Lt
Venous leakage	1.29 (0.59) ^a	56.5 (18.9)	34.11 (9.94)	33.56 (7.44)	0.82 (0.07)	0.79 (0.07)
Arteriogenic	1.50 (0.79)	49.7 (13.1)	18.81 (4.92)	19.07 (5.70)	0.72 (0.06)	0.72 (0.08)
Psychogenic	2.85 (0.38)	74.3 (23.5)	32.61 (12.0)	40.35 (12.3)	0.87 (0.08)	0.86 (0.11)
Diabetes Mellitus	2.25 (0.96)	55.0 (25.5)	22.17 (8.76)	17.95 (9.95)	0.85 (0.05)	0.83 (0.07)
Hypertension	1.25 (0.50)	42.5 (2.89)	22.38 (3.02)	23.59 (5.68)	0.75 (0.09)	0.76 (0.14)

^aMean (SD).

leakage in 18, and arteriogenic in 17. The other 7 patients had psychogenic erectile dysfunction. The results of duplex Doppler evaluations of penile blood flow in these patients after intracavernous injection of PGE₁ are listed in Table 2.

Clinical observations after intracavernous injection of PGE₁ correlated well with the etiological diagnosis. Patients with venous leakage syndrome only showed grade 1 erection with penile rigidity scores of 1-2. The mean (SD) peak blood flow was 34.11 cm/s (9.94) for the right side and 33.56 cm/s (7.44) for the left side. Patients with arteriogenic impotence showed a moderate erection with rigidity scores of 1-3 and lower RI values. Their peak blood flows were about 18.81 (4.92) and 19.07 cm/s (5.70) for the right and left sides, respectively. Patients with psychogenic impotence showed on defects in the hemodynamic blood flow of the corpus cavernosum. Their mean peak blood flow rates were around 32.61 (12.0) and 40.35 cm/s (12.3) for the right and left sides, respectively. These patients all achieved grade 2-3 erections with rigidity scores of 3. Patients with arteriogenic impotence complicated with either dia-

betes mellitus or hypertension showed responses similar to arteriogenic patients without these complications, but with lower peak blood flows for both sides.

Tables 3 and 4 illustrate the results of ANOVA for the effects of etiology and artery side on peak blood flow and RI. Since the interaction between the etiology and artery side was found to be statistically insignificant for both cases ($F = 0.65$, $p = 0.6305$; $F = 0.29$, $p = 0.8788$), the main effect of each factor was tested. Only the effect of etiology was statistically significant on both peak blood flow ($F = 15.79$, $p < 0.0001$) and RI ($F = 6.02$, $p = 0.0013$). Patients with different etiologies exhibited differences in mean peak blood flow and RI. Patients with arteriogenic or psychogenic causes showed higher mean blood flow rates and RI values than did those with venous leakage syndrome. Patients with arteriogenic impotence with diabetes or hypertension had peak flow rates similar to those of patients with venous leakage syndrome. However, the mean RI of patients with hypertension, but not those with diabetes, differed from that of patients with arteriogenic impotence.

Table 3. The Results of ANOVA Test for the Effect of Etiology and Artery Sides on Peak Blood Flow

Source	SS	DF	MS	F	P
Subjects (S)	798.19	17	46.95	0.59	0.8742
Etiology (E)	5324.59	4	1331.15	15.79 ^a	0.0001
S*E	2360.67	28	84.31		
Artery sides (A)	5.71	1	5.71	0.21 ^b	0.6491
S*A	452.36	17	26.61		
E*A	208.71	4	52.18	0.65	0.6305
S*E*A	2242.10	28	80.08		
Total	11803.14	99			

^aUsing S*D as the error term; ^busing S*A as the error term.