

The effect and pharmacokinetics of percutaneous administration of dihydrotestosterone gel in Chinese Children with microphallus

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OBJECTIVES

To study the pharmacokinetics and effect of percutaneous administration DHT gel in the Chinese microphallus patients.

METHODS

Fourteen patients (age range 2.50–14.21 years) with microphallus of miscellaneous etiologies were studied prospectively. 2.5% DHT gel was applied to the phallus once daily at a dose of 0.3-0.4 mg/kg body weight. Serum DHT concentrations were measured at 0, 2, 4, 8, 12 and 24 h following application of DHT gel.

Case	Diagnosis	Age(year)	Length of the penis before DHT treatment(cm)	Width of the penis before DHT treatment(cm)	Concentration of serum DHT before the use of DHT gel (pg/ml)	Concentration of serum DHT 2 hours after use of DHT gel (pg/ml)	Concentration of serum DHT 4 hours after use of DHT gel (pg/ml)	Concentration of serum DHT 8 hours after use of DHT gel (pg/ml)	Concentration of serum DHT 12 hours after use of DHT gel (pg/ml)	Concentration of serum DHT 24 hours after use of DHT gel (pg/ml)	Length of the penis after 3-4 months DHT treatment(cm)	Width of the penis after 3-4months DHT treatment(cm)
1	Androgen insensitivity syndrome	7.77	2.5	1.2	36.02	44.06	46.91	41.05	35.91	46.5	2.8	1.3
2	Steroid 5 Alpha-reductase	12.47	2.7	1.4	23.89	28.67	27.32	29.55	23.49	29.86	4	2.2
3	Steroid 5 Alpha-reductase	2.54	1.4	0.9	61.39	460.83	357.07	141.42	62.57	35.23	2	1.2
4	Steroid 5 Alpha-reductase	13.63	3	2	29.23	66.54	33.41	45.55	41.48	30	3.2	2.2
5	Unknown	2.88	1.6	1.2	19.24	654.34	702.76	776.54	1143.88	394.67	2	1.4
6	Unknown	5.52	2.3	0.8	23.84	172.95	118	120.13	162.03	12.08	2.6	1.5
7	Unknown	12.43	2.5	1.9	19.49	33.15	41.51	32.61	69.77	30.38	4.2	2.2
8	Unknown	2.98	2.7	0.8	11.99	14.82	15.75	18.02	19.56	18.8	3.8	1
9	Unknown	2.50	2	1.5	16.51	597.38	551.92	386.77	202.53	20	2.5	1.6
10	Steroid 5 Alpha-reductase	5.91	1.2	1.2	23.72	131.87	143.3	130.46	36.76	38.14	2.7	1.4
11	Unknown	4.87	2.2	1	18.06	61.16	86.21	100.08	157.45	52.62	2.5	1.5
12	Steroid 5 Alpha-reductase	14.21	2.2	0.8	34.42	81.12	105.25	119.74	226.19	137.3	3	1.8
13	Steroid 5 Alpha-reductase	8.11	1.8	0.8	41.02	50.44	55.24	52.44	67.07	24.63	3	1.5
14	Steroid 5 Alpha-reductase	9.15	1.5	1.2	40.03	94.82	95.89	101.1	94.45	59.58	3.2	1.5

RESULTS

Peak DHT concentrations were attained within 2–12 h after application of the gel and subsequently remained within the pre-adolescence range in all but 1 patient, who remains consistently high level. An increase in phallic growth, ranging from 0.2–1.7cm in length, 0.1-2cm in width, and 0.3-1cm in circumference was achieved after 3–4 months of treatment in all patients whose DHT concentrations were maintained within pre-adolescence range.

CONCLUSIONS

Percutaneous administration of DHT in a dose of 0.3–0.4mg/kg once daily for a period of 3–4 months may be useful in the management of patients with testosterone biosynthetic defects in Chinese patients with micropenis prior to reconstructive surgery.

References

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