

# Prader-Willi症候群の脂肪分布の特徴と成長ホルモン治療の効果

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	GH 投与中 (n=18)	投与歴あり (n=15)	投与歴なし (n=15)
男性 (人)	10	7	13
女性 (人)	8	8	2
年齢中央値 (歳)	10.8 (6.9-16.3)	19.3 (14.9-33.6)	22.5 (6.4-39.4)
BMI 中央値 (kg/m <sup>2</sup> )	18.4 (14.0-32.6)	27.1 (16.4-58.7)	31.7 (16.7-58.6)
GH 投与期間 (年)	7.3 (1.6-11.1)	5.0 (1.2-7.8)	—

表 1 GH 投与歴による各群の性差、年齢、BMI、GH 投与期間

	全体 PWS (n=45)		肥満 PWS (n=19)	
	r	p	r	p
アディポネクチン vs SAT	-0.54	0.0002*	-0.28	0.25
vs VAT	-0.50	0.0006*	-0.39	0.10
vs V/S	-0.03	0.8300	-0.10	0.68
vs 年齢	-0.45	0.0024**	-0.18	0.46

\*\*p<0.05 \*p<0.001

表 2 全体 PWS、肥満 PWS 各群におけるアディポネクチンと脂肪分布(皮下脂肪:SAT、内臓脂肪:VAT、内臓脂肪/皮下脂肪:V/S)、年齢との相関

図 1 PWS 患者(48 名)における年齢と脂肪分布の関連

図 2 PWS 患者(48 名)における BMI と V/S の関連

BMI 25 kg/m<sup>2</sup>以上の肥満群 22 例。うち V/S(内臓脂肪量/皮下脂肪量) 0.4 以上の内臓脂肪型肥満は 5 人。

図 3 14 歳以上 20 歳以下の PWS 患者(21 名)における GH 投与と脂肪分布の関連

図 4 GH 中止前後の脂肪分布の推移

対象は GH 中止前後の経過を追えた 5 例

図 5 GH 中止前後における fat scan による脂肪分布の推移(症例②)

Adipose tissue distribution in children and adults with Prader -Willi  
syndrome: changes with age and the effect of growth hormone treatment

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Abstract

The Prader-Willi syndrome (PWS) is a genetic disorder associated with chromosome 15q11-13 and shows characteristic age-related clinical features, in particular, marked anthropometric changes. Emaciation is observed during infancy, and severe obesity is seen in older children and adults. Growth hormone (GH) treatment modifies the anthropometric natural history of PWS patients. In this study, we examined the changes in the body composition of 48 PWS patients aged 6 to 39 years, with a focus on the amount of abdominal visceral adipose tissue (VAT), the amount of subcutaneous adipose tissue (SAT), the VAT/SAT (V/S) ratio, and serum

adiponectin levels.

In patients undergoing GH treatment, the amount of SAT increased markedly with age, but that of VAT remained low. In patients who discontinued GH treatment, the amount of VAT increased with age, as was the case for non-GH-treated patients. In the obese group (body mass index,  $\geq 25$  kg/m<sup>2</sup>; n = 22), adipose tissue was predominantly distributed subcutaneously, with only 5 of 22 patients showing a high V/S ratio ( $>0.4$ ).

Serum adiponectin levels showed strong negative correlations with the amount of both VAT (r = -0.54, p < 0.001) and SAT (r = -0.50, p < 0.001). Adiponectin levels were within the normal range, even in the obese group, except in the case of 2 patients.

To maintain low VAT accumulation, GH treatment is desirable in adult PWS patients as well.