

## Somatrogon

### Approved indication: growth hormone deficiency

#### Ngenla (Pfizer)

#### pre-filled pens containing 24 mg/1.2 mL or 60 mg/1.2 mL

In children, growth hormone deficiency may be congenital, acquired or idiopathic. It has several effects including reduced growth resulting in short stature. The children are treated with synthetic human growth hormone (somatropin). This requires daily injections which are painful and distressing for some children. The desire to reduce the frequency of injections has led to the development of long-acting analogues of growth hormone.

Somatrogon contains the amino acid sequence of growth hormone plus three copies of the C-terminal peptide of human chorionic gonadotropin. The C-terminal modification extends the half-life of growth hormone to approximately 28 hours. Somatrogon will remain in circulation for six days, so weekly subcutaneous dosing is possible. The injection should be rotated each week between the abdomen, thighs, upper arms and buttocks. Doses are adjusted according to the concentration of insulin-like growth factor (IGF-1), body weight and growth velocity.

The recommended weekly dose of 0.66 mg/kg is based on an open-label phase II trial involving 53 children with growth hormone deficiency. These children had an average age of about six years. They were randomised to receive daily somatropin or one of three different doses of somatrogon once a week. Over a year, IGF-1 concentrations increased in all groups and the children grew. The efficacy of the recommended dose was similar to that of daily injections of somatropin.<sup>1</sup>

A phase III trial also compared weekly somatrogon with daily somatropin. In this open-label trial 224 previously untreated children, with an average age of 7.72 years, were studied for one year. At the end of the trial, the average annual height velocity was 10.10 cm/year for the 109 children given somatrogon and 9.78 cm/year for the 115 given somatropin. Bone maturation was similar in both groups.<sup>2</sup>

In the phase III trial injection-site reactions were the most frequent adverse events. Injection-site pain was experienced by 39.4% of the somatrogon group and 25.2% of the somatropin group. Erythema and itching at the injection site only occurred in the children given somatrogon. About 77% of this group developed antidrug antibodies, compared with about 16% of the somatropin group, but there was no evidence of neutralising activity. Like other growth hormone products somatrogon may have effects on glucose metabolism and adrenal function. Caution is required if the child requires treatment with a corticosteroid. Somatrogon is contraindicated in acute critical illness and children with cancer.

The phase III trial showed that somatrogon was not statistically inferior to somatropin.<sup>2</sup> While the injections of somatrogon are less frequent they are more painful. Longer term follow-up is needed to address questions about immunogenicity and any effects from not having daily peaks and troughs in growth hormone concentrations. Treatment with somatrogon is recommended to end when there is closure of the epiphyseal growth plates.

**T** [manufacturer provided the product information](#)

## REFERENCES

1. Zelinska N, Iotova V, Skorodok J, Malievsky O, Peterkova V, Samsonova L, et al. Long-acting C-terminal peptide-modified hGH (MOD-4023): results of a safety and dose-finding study in GHD children. *J Clin Endocrinol Metab* 2017;102:1578-87. <https://doi.org/10.1210/jc.2016-3547>
2. Deal CL, Steelman J, Vlachopapadopoulou E, Stawerska R, Silverman LA, Phillip M, et al. Efficacy and safety of weekly somatrogon vs daily somatropin in children with growth hormone deficiency: a phase 3 study. *J Clin Endocrinol Metab* 2022;107:e2717-8. <https://doi.org/10.1210/clinem/dgac220>

The Transparency Score is explained in [New drugs: transparency, Vol 37 No 1, Aust Prescr 2014;37:27](#).

At the time the comment was prepared, information about this drug was available on the website of the [European Medicines Agency](#).

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