Metabolic effects of growth hormone.

No registrations found.

Ethical review	Not applicable
Status	Recruiting
Health condition type	-
Study type	Interventional

Summary

ID

NL-OMON22646

Source
NTR

Health condition

Kabuki Syndrome (KS, OMIM 147920) multiple anomaly syndrome
mutation MLL2 gene
obesity, hypotonia and short stature.

Sponsors and support

Primary sponsor: Maastricht University Medical Centre
Source(s) of monetary or material Support: Pfizer

Intervention

Outcome measures

Primary outcome

1. Is there an increase in TEE during 6 weeks treatment with rhGH in children with Kabuki Syndrome?

2. What is the relation between the short-term (6 weeks) change in TEE as measured with the DLW technique and the long term change in height SDS during treatment with rhGH?

3. What is the effect of rhGH treatment on metabolic risk parameters typical for the metabolic syndrome in adults?

Secondary outcome

To assess the long (1 year) term safety of growth hormone therapy on metabolic risk parameters and body composition.

Study description

Background summary

Rationale:

Kabuki Syndrome (KS, OMIM 147920) is a multiple anomaly syndrome. Recently, an available genetic test strongly confirm the diagnosis KS with a mutation in MLL2 gene. Some of the clinical signs and symptoms in KS children are obesity, hypertension, hypotonia and short stature. Features resembling the metabolic syndrome (MS) and hypothalamic disturbance.

There seems to be an association between the disturbance of the growth hormone axis and several features of the metabolic syndrome (MS). The MS is characterized as a cluster of metabolic abnormalities that strongly increase the risk of cardiovascular disease and type II diabetes mellitus in adulthood. It is known that both GH and insulin-like growth factor-I (IGF-I) reduces these cardiovascular risk factors and has beneficial effects on body composition by reducing fat mass and increasing muscle mass.

The aim of this study is to evaluate the effect of GH treatment on changes in height velocity and obesity and the mechanisms involved in the regulation of these changes in body composition and TEE.

Objective:

The primary objective of this study is to assess the energy expenditure and body composition in KS children and its dependence of growth hormone. Secondly, we want to assess the effects of GH on metabolic risk parameters which are typical parameters for the metabolic syndrome in adults.
Study design: The subjects will be included in a prospective study. Total body water (TBW), TEE, basal metabolic rate (BMR) and physical activity level (PAL) measurements are performed over a 6-wk period. Markers of metabolic risk factors will be determined during routine blood controls. The children will be followed during one year of treatment to evaluate the change in height SD.

Study population:

Prepubertal, KS children who will start growth hormone treatment. A total of 20 subjects will be recruited at the Maastricht University Medical Centre, the Netherlands.

Intervention:

All subjects receive recombinant human (rh)GH in accordance with international guidelines for developmental syndromes.

Main study parameters/endpoints:

The short-term metabolic effects of GH treatment in KS children related with the long-term change in height SDS after one year.

Study objective

The hypothesis is that rhGH treatment in children with KS results within 6 weeks in a change of metabolism recognizable as an increase of total energy expenditure (TEE). This change in metabolism can be used as a predictor of growth response in the first year of treatment and indicates a better body composition.

Study design

During the study, we will monitor the metabolic effects and efficacy of rhGH in KS subjects. A total of 20 KS subjects will be recruited at the Maastricht University Medical Centre, The Netherlands. All subjects will receive rhGH according to international consent. Total body water (TBW), total energy expenditure (TEE), basal metabolic rate (BMR) and physical activity level (PAL) measurements are performed over a 2-wk period using the doubly labeled water (DLW) method before and during GH treatment. Markers of metabolic risk factors will be determined during routine blood controls. Baseline characteristics of growth patterns, blood pressure, BMI and waist circumference are collected every three months during routine controls. Furthermore, the measurements will be linked with the anthropometric parameters of each individual assembling a prognostic growth profile, therefore the children will be followed during one year of treatment to evaluate the change in height standard deviation score (SDS).

Intervention

Growth hormone treatment 1-1.4 mg/m2/day in 1 dd subcutaneous.

Contacts

Public
Department of Genetics
Maastricht University Medical Centre (MUMC)
PO box 5800
C.T.R.M. Schrander-Stumpel
Maastricht 6202 AZ
The Netherlands
+31 (0)43 3875855
Scientific
Department of Genetics
Maastricht University Medical Centre (MUMC)
PO box 5800
C.T.R.M. Schrander-Stumpel
Maastricht 6202 AZ
The Netherlands
+31 (0)43 3875855

Eligibility criteria

Inclusion criteria

1. Children with the MML2 mutation;

2. Children who meet at least four out of five KS characteristics:

A. Facial features: Long palpebral fissures with eversion of outer third, arched eyebrows with sparse outer half, prominent and/or misshapen ears, and depressed nasal tip;

B. Skeletal abnormalities;

C. Intellectual disability (mild to moderate);

D. Postnatal short stature;

E. Abnormalities of dermal ridges.

3. Informed consent;

4. Age ≥ four years.

Exclusion criteria

1. Children with a chronological or bone age greater than 8 years for girls and 10 years for boys, because of the influence of puberty;

2. Extremely low dietary intake (less than minimal required intake for age according to WHO criteria);

3. Use of medication that might interfere with growth during GH therapy, such as corticosteroids and sex steroids.

Study design

Design

Study type:	Interventional
Intervention model:	Parallel
Allocation:	Non controlled trial
Masking:	Open (masking not used)
Control:	N/A , unknown

Recruitment

NL

Recruitment status:	Recruiting
Start date (anticipated):	01-05-2012
Enrollment:	20
Type:	Anticipated

Ethics review

Not applicable

Application type:	Not applicable

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register	ID
NTR-new	NL3191
NTR-old	NTR3342
Other	EudraCT : 2012-000432-26
ISRCTN	ISRCTN wordt niet meer aangevraagd.

Study results

Summary results
N/A