



# UNALTERED RATIO OF CIRCULATING LEVELS OF GROWTH HORMONE (GH) ISOFORMS AFTER ADMINISTRATION OF DIFFERENT GH PROVOCATIVE TESTS IN A POPULATION OF SHORT STATURE CHILDREN



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## BACKGROUND

Human growth hormone (GH) is a heterogeneous protein hormone consisting of several isoforms, the most abundant being 22 kDa- and 20k Da-GH. The availability of analytical methods to measure these GH isoforms might represent a valuable diagnostic tool to investigate GH secretion in short stature.

## METHODS

A total of 118 short-statured children (M/F: 72/46; age range 1.1-15.6 years) after administration of insulin, arginine, GHRH+arginine or glucagon was consecutively recruited from January 2010 to December 2014. The results were analysed subdividing the study population on the basis of the administered GH provocative test or the diagnosis of short stature (ISS, GHD, BIO-SS or Re-GHD). The data are expressed as mean±standard deviation.

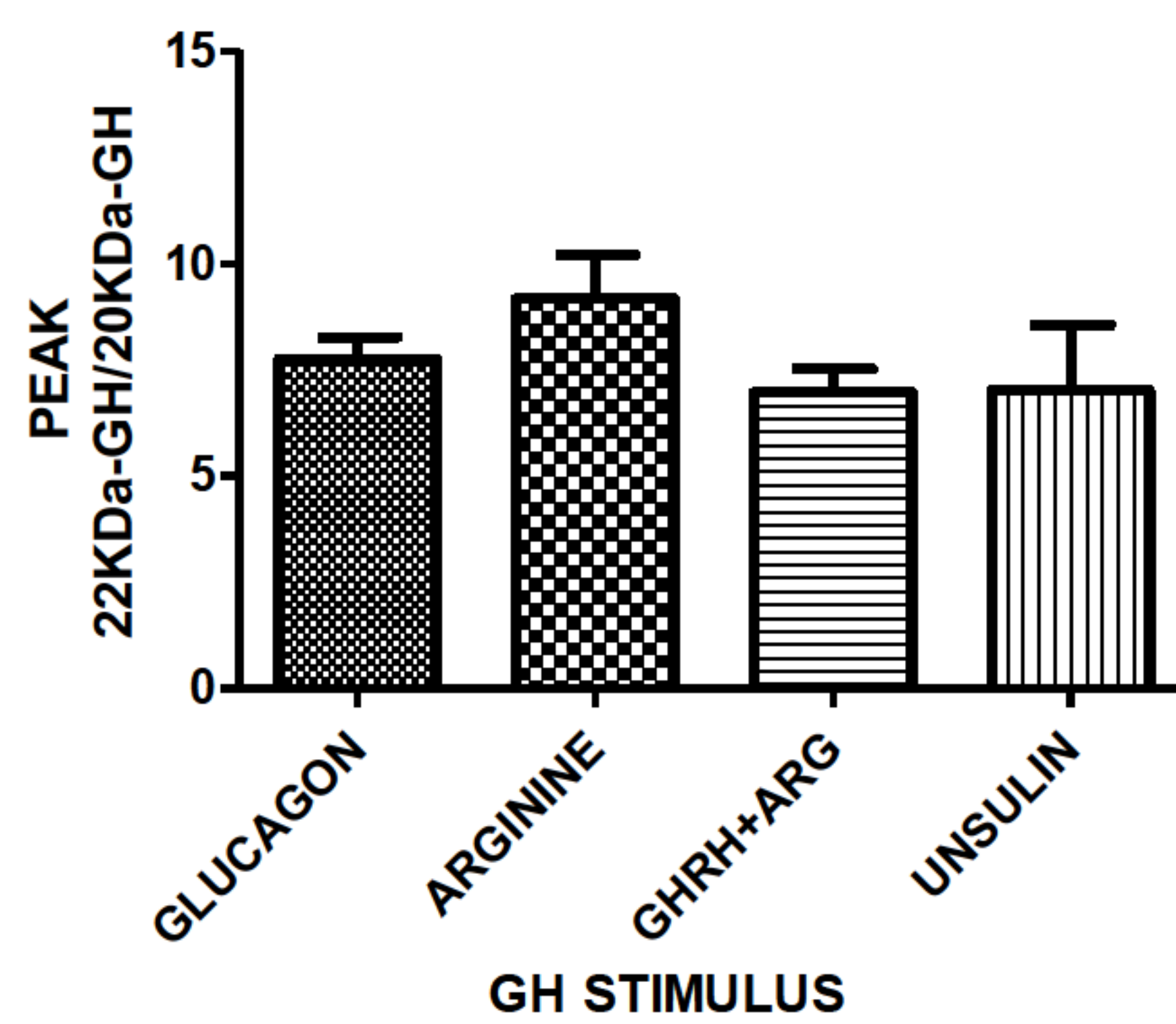
## OBJECTIVES AND HYPOTHESES

Aim of the present study was to measure circulating levels of 22 kDa- and 20 kDa-GH in children with different diagnosis of short stature such as idiopathic short stature (ISS), isolated GH deficiency (GHD), short stature by bioinactive GH (BIO-SS) or GHD subjects at time of retesting at the end of GH therapy (Re-GHD), using different GH provocative tests (insulin, arginine, GHRH+arginine or glucagon).

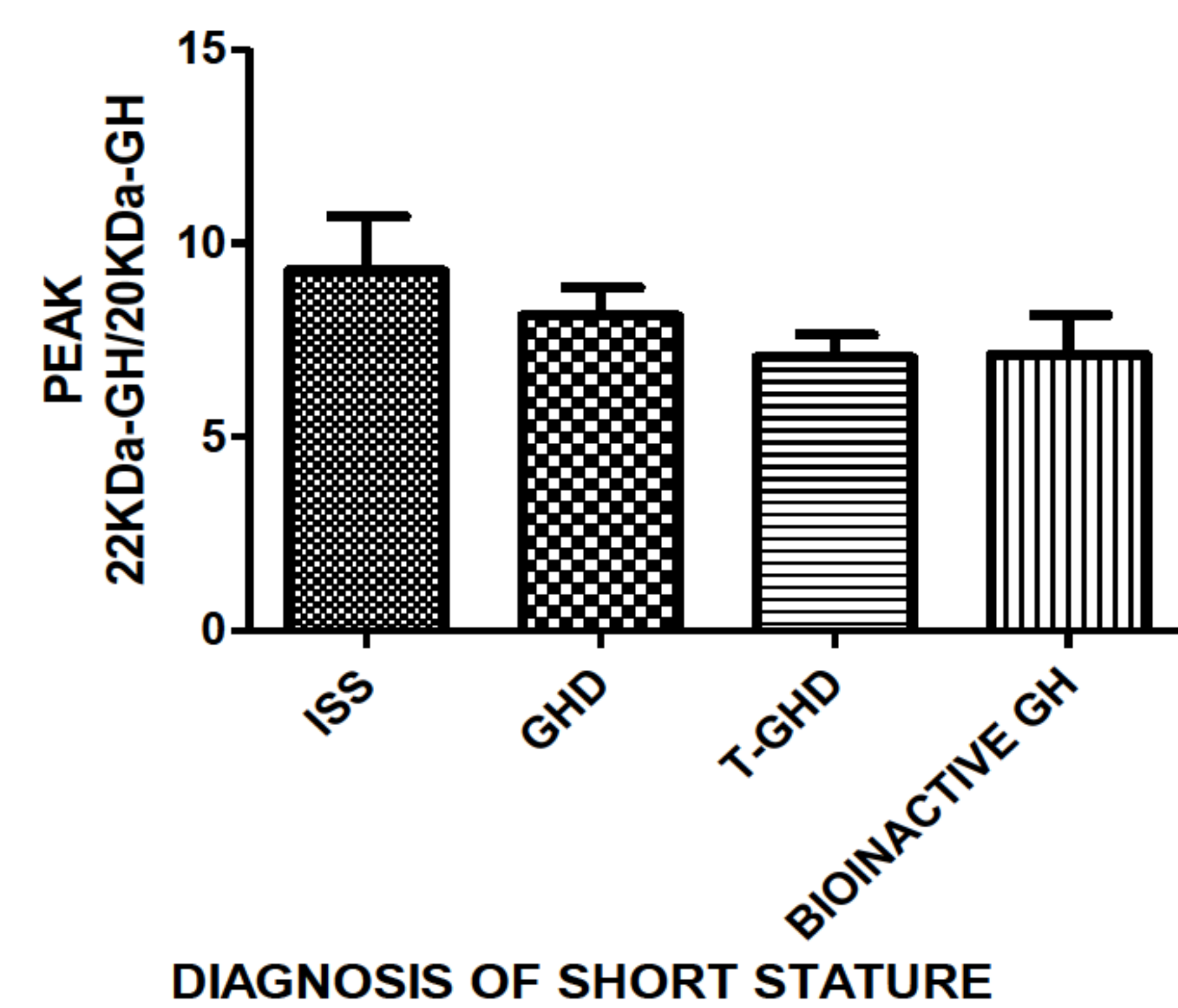
## RESULTS

When considering GH provocative test, there were no statistically significant differences in the ratio of GH peak 22/20 kDa (insulin: 7.0±2.7; arginine: 9.2±7.2; GHRH+arginine; 7.0±2.9; glucagon: 7.7±3.3). Similarly, when considering diagnosis of short stature, there were no statistically significant differences in the ratio of GH peak 22kDa/20k Da (ISS: 7.0±8.2; GHD: 5.4±3.9; Re-GHD: 5.4±3.0; BIO-SS: 7.1±1.8).

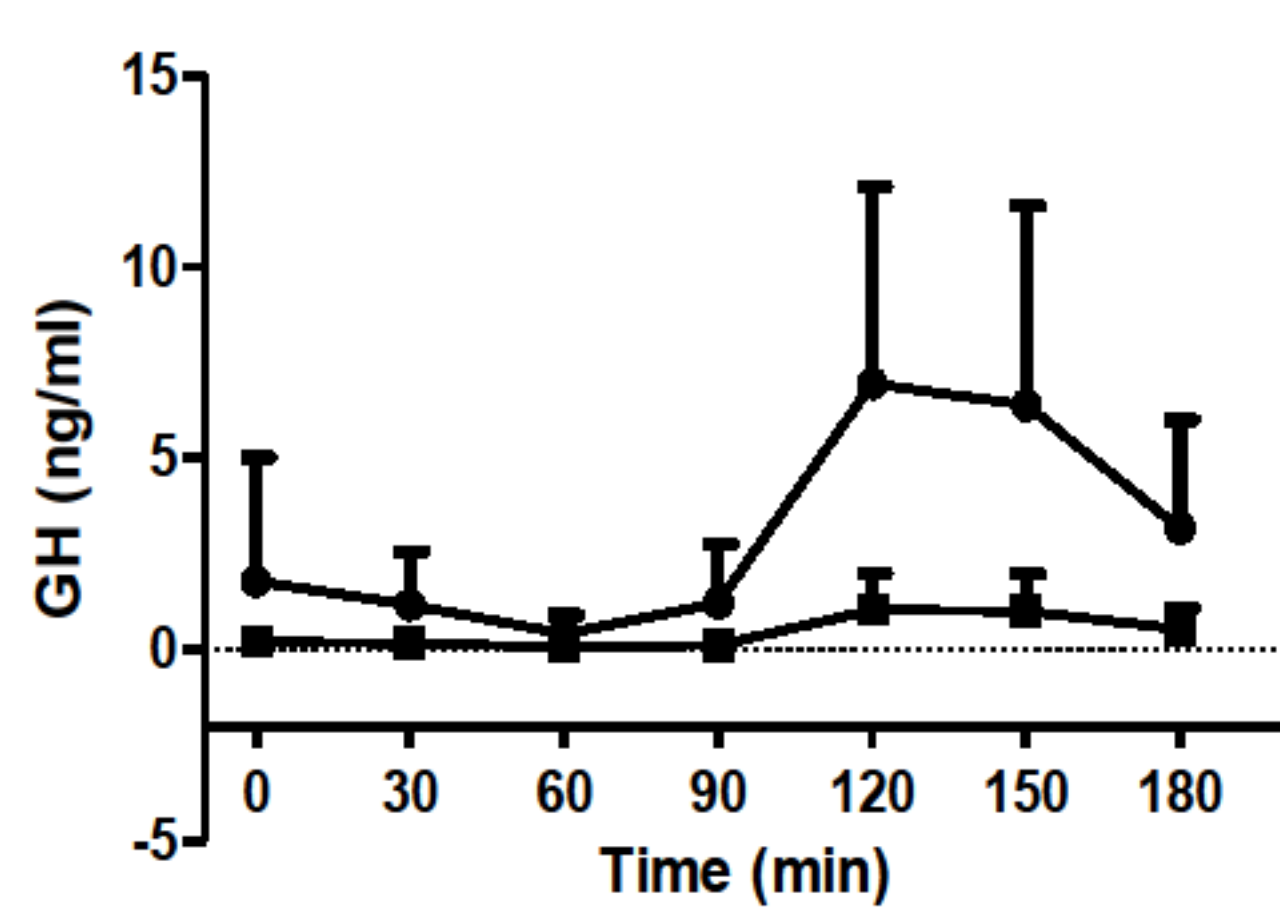
### GH PROVOCATIVE TESTING



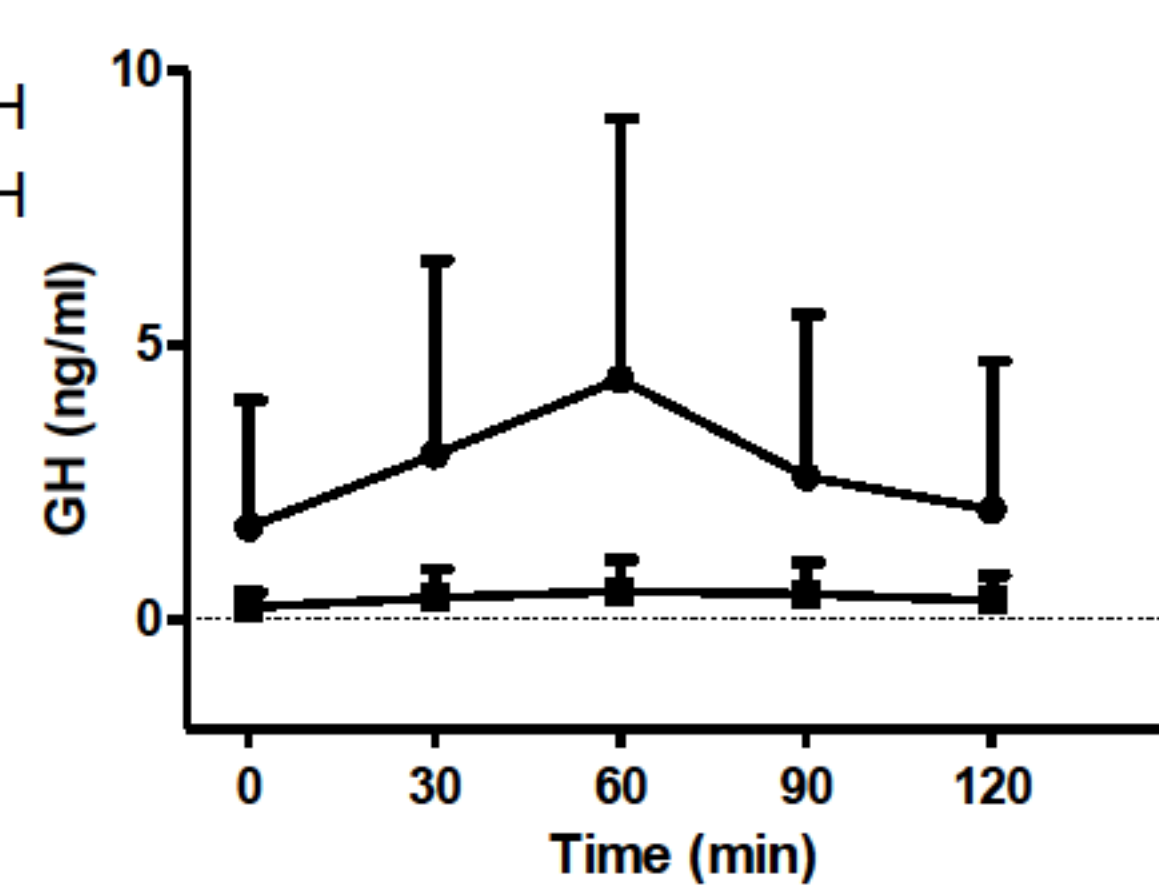
### DIAGNOSIS



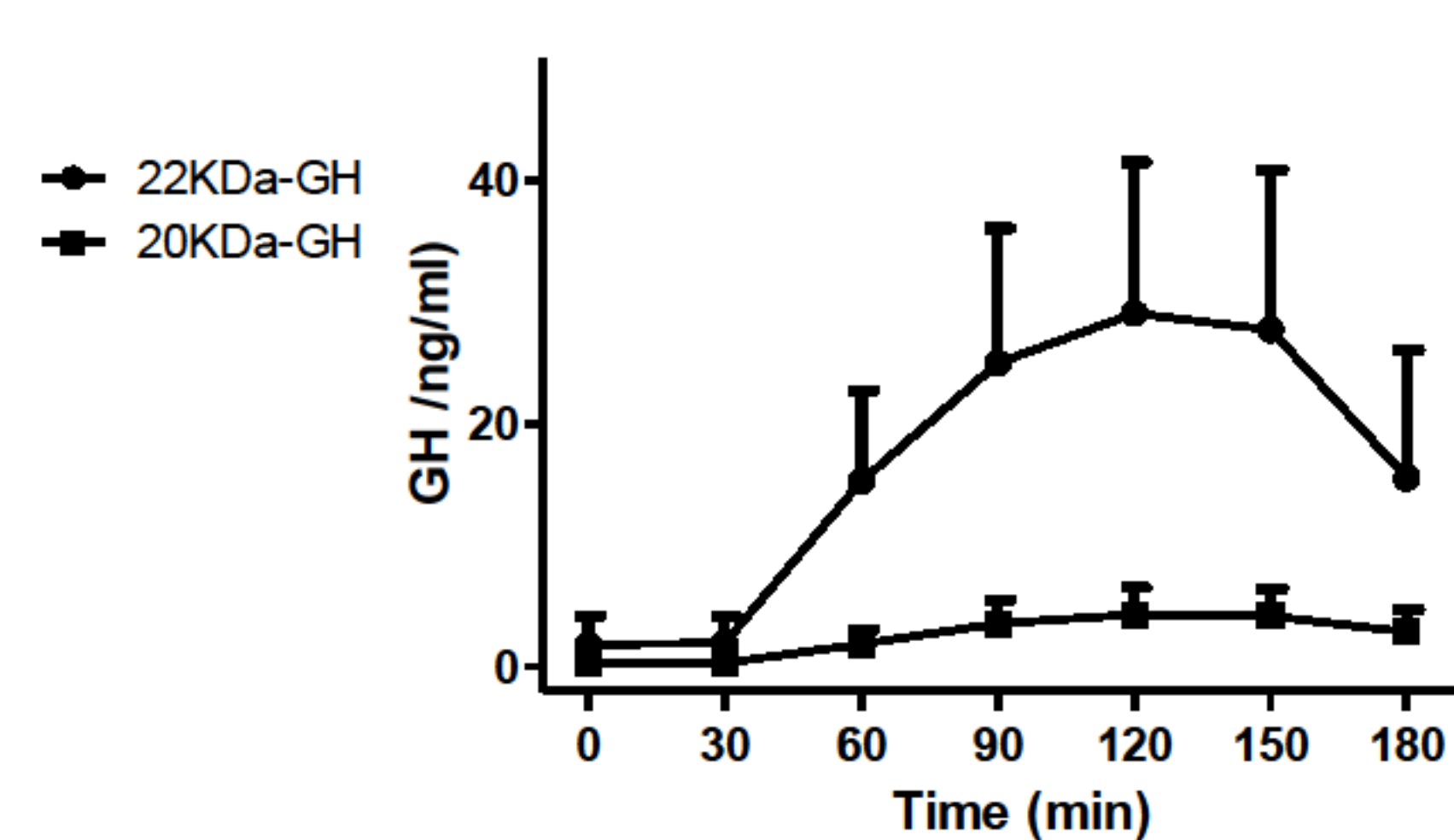
### GLUCAGON



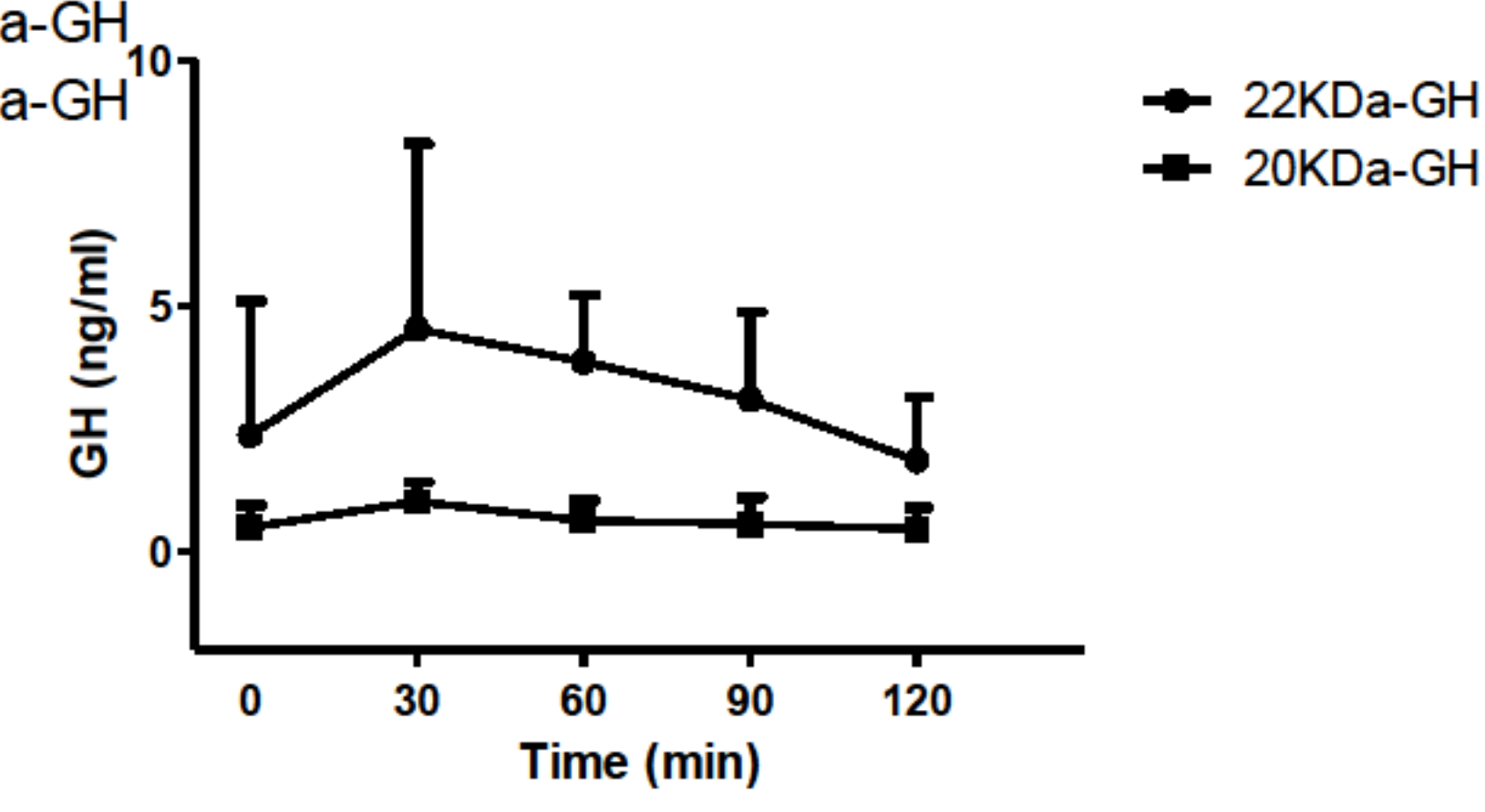
### ARGININE



### GHRH+ARG



### INSULIN



## CONCLUSIONS

The main GH provocative tests currently used in paediatric endocrinological practice, which are based on different neuroendocrine mechanisms, stimulate a similar secretion of GH isoforms. Moreover, different causes of short stature are not associated with an unbalance in GH isoforms.

