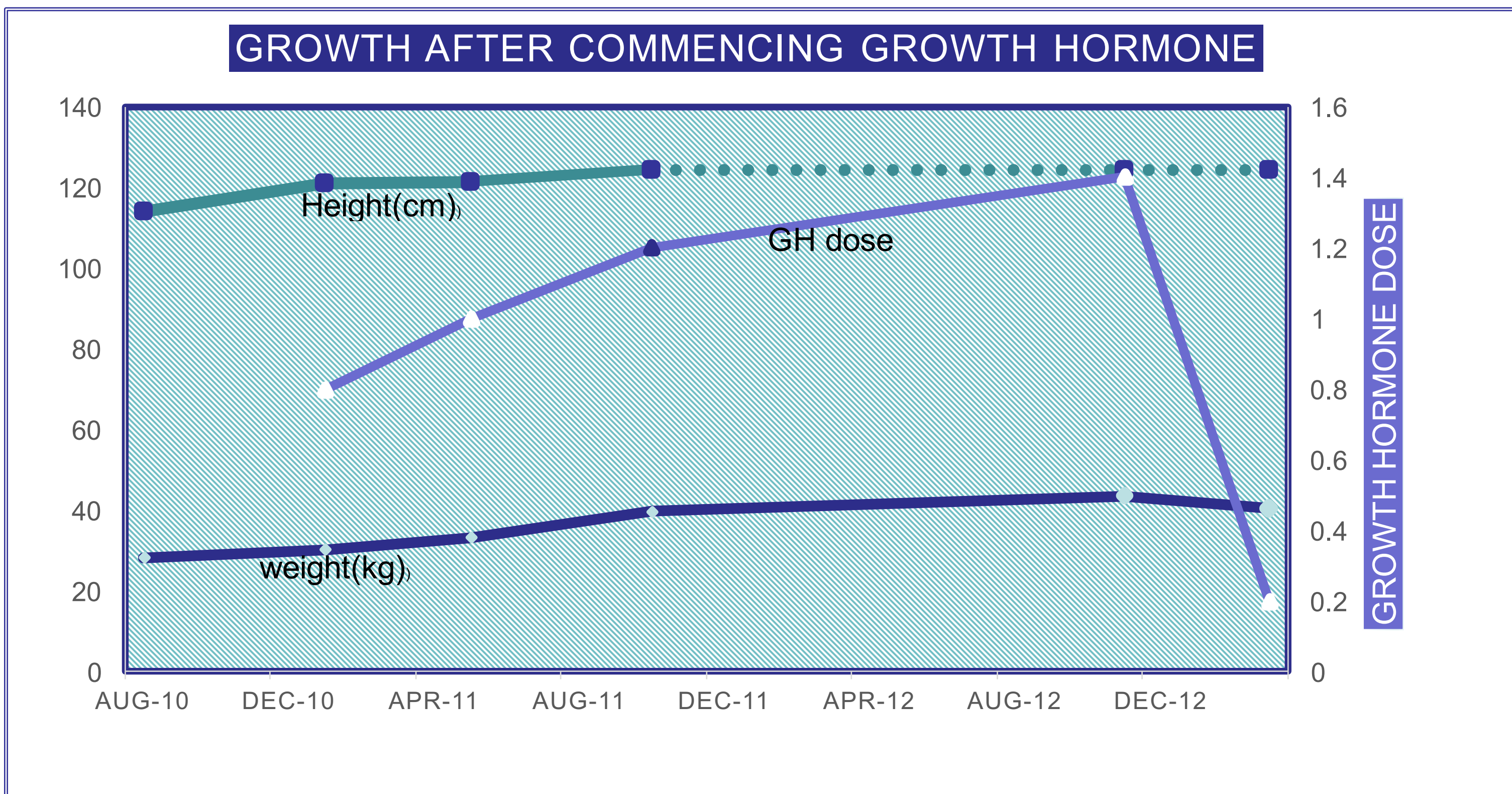


Manifestation of overt diabetes on growth hormone treatment

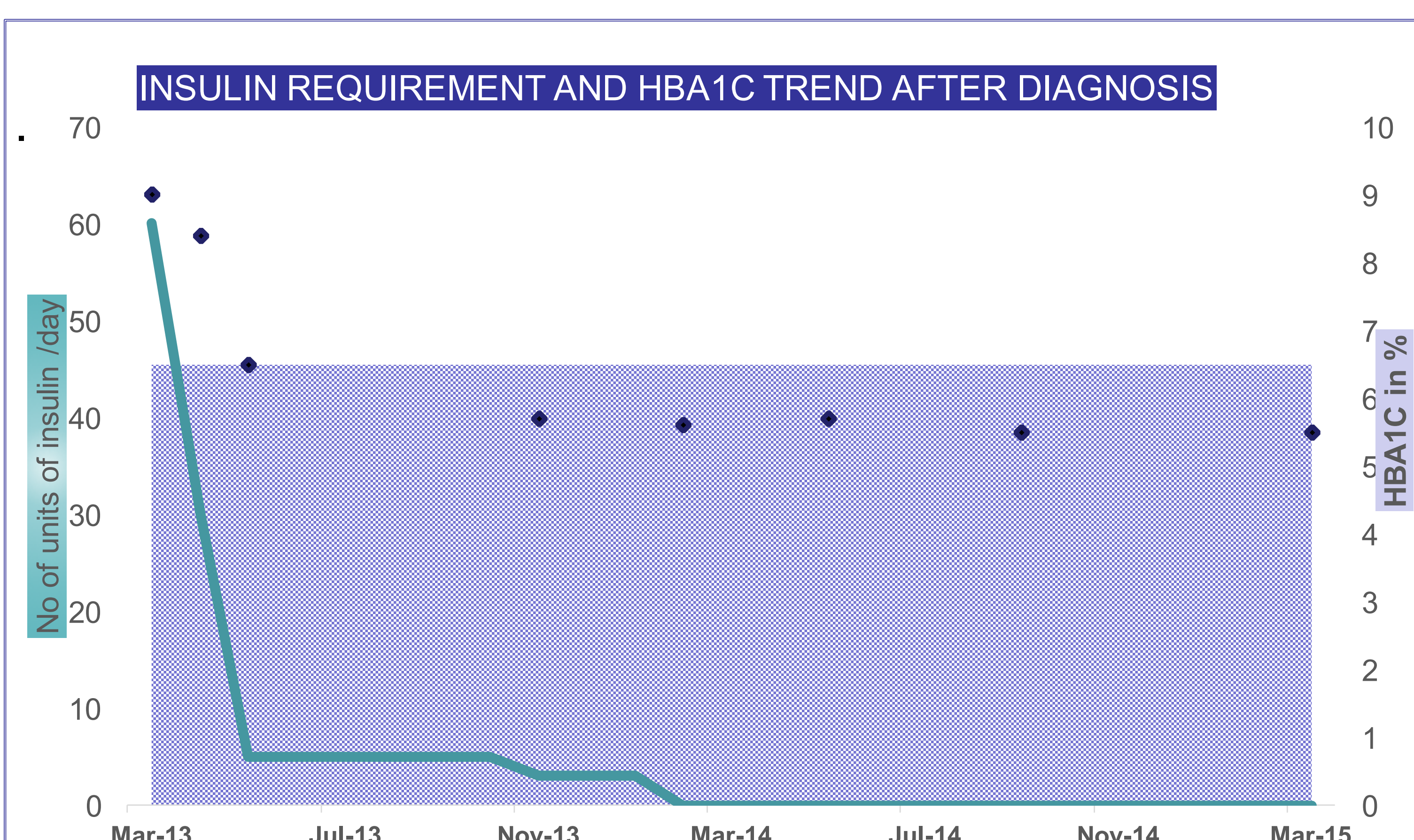
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HULL ROYAL INFIRMARY

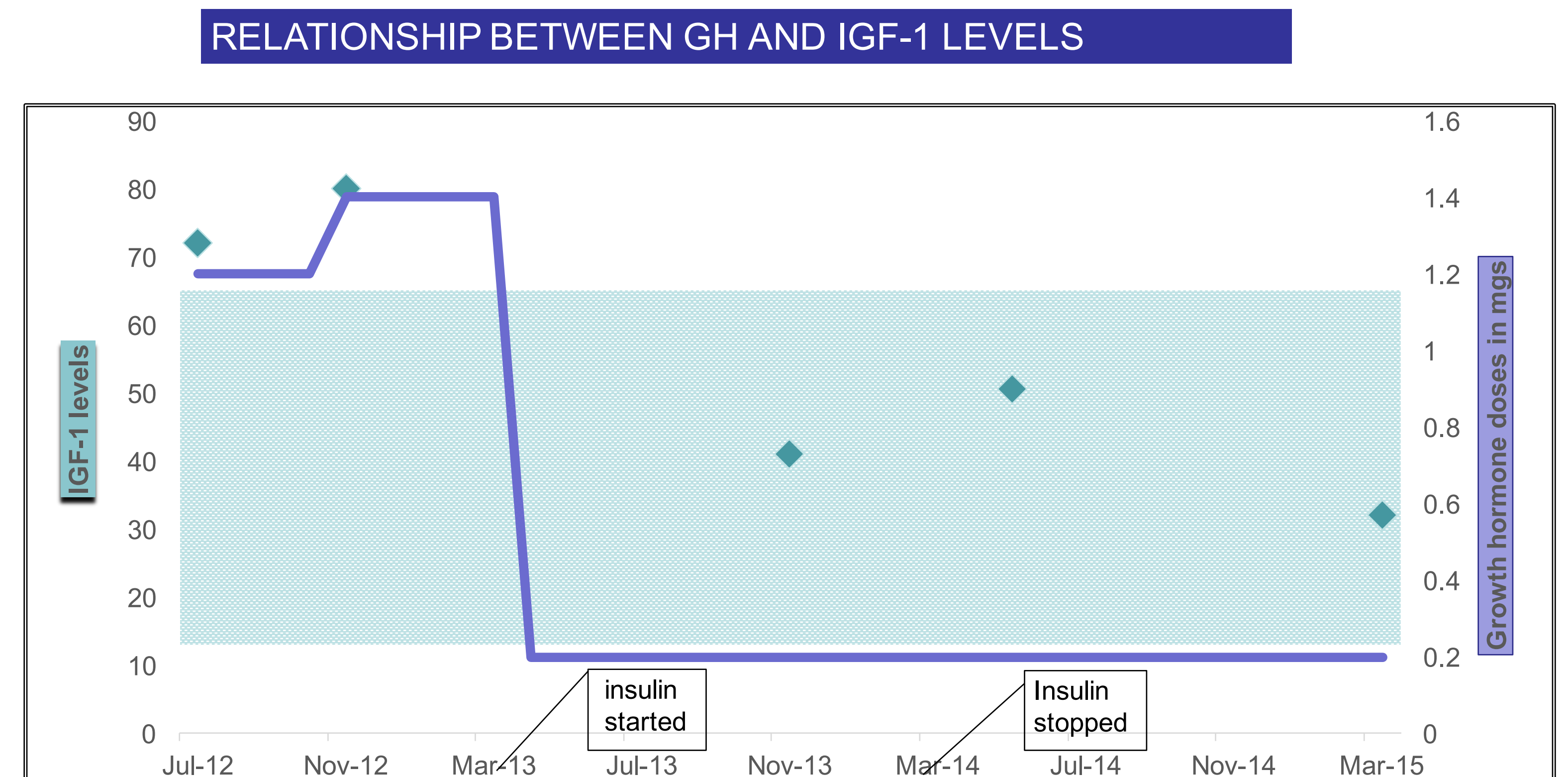
- ❖ A 14 year old girl with background of cerebral palsy (functionally grade 4), global developmental delay, panhypopituitarism(diagnosed at 12 yrs of age).
- ❖ Medications: growth hormone(GH)(1.4 mg/day), thyroxine and hydrocortisone
- ❖ Height measurement was always an issue due to significant scoliosis and contractures.



- ❖ Presented with chest infection,found to be persistently hyperglycemic(HbA1c 9%), autoantibody screen was negative
- ❖ Treated with insulin.(needed a large dose-2U/kg/day)
- ❖ Around the same time, dose of GH reduced to adult dose(0.2 mg/day) as her Insulin like growth factor-1(IGF-1) levels were high and she had completed her growth.
- ❖ Her insulin requirement drastically reduced over a period of a month.
- ❖ She continued to take a small dose of levamisole (5 units), but had to wean it off due to hypoglycemic episodes, stopped after a year.
- ❖ Her blood sugars and HbA1c remain normal, now off insulin for nearly 2 years



- ❖ It is of note that her IGF-1 levels were high for a period of at least 6 months before she was diagnosed with diabetes.
- ❖ Improvement in her diabetes coincided with reduction of GH dose. And gradual normalisation of HBA1c correlated with normal IGF-1 levels.



CONCLUSION

A significantly disabled teenager developed iatrogenic diabetes on GH treatment, needed insulin, which, however reversed on reducing the GH to adult maintenance dose.

LEARNING POINTS

- ❖ GH replacement therapy can increase insulin resistance(1). Hence the need to monitor HbA1C levels during GH therapy.
- ❖ Fasting insulin levels are needed to document insulin resistance in any case of atypical diabetes.
- ❖ Height can be very difficult to measure in a child with significant disability, hence completion of growth difficult to assess.
- ❖ Completion of growth is an indication to stop/reduce GH therapy depending on etiology(3).
- ❖ If supraphysiological levels of GH are maintained (as in acromegaly) insulin resistance increases and can precipitate diabetes.
- ❖ It is recommended that GH doses be gradually reduced after epiphyseal closure, using serum IGF-I concentration as a guide with the aim of maintaining serum IGF-I levels within the age-appropriate normal range(2).

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