Growth Hormone therapy and its challenges in GH Deficient cases in a multinational population-a sneak-peek

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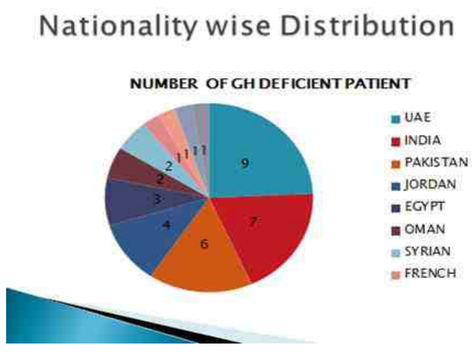
Objectives

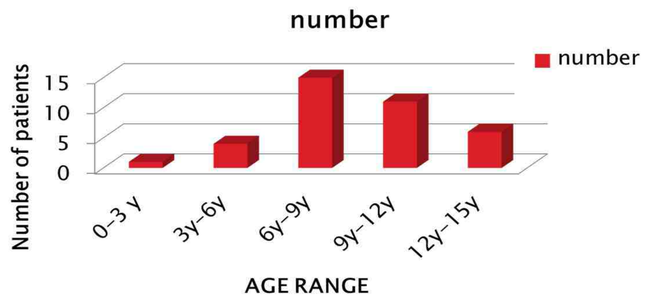
- To identify growth hormone deficiency (GHD) in cases referred for short stature in a multi-national population.
- To evaluate the acceptance, adherence and side effects of GH therapy in these GH deficient cases.

Materials and methods

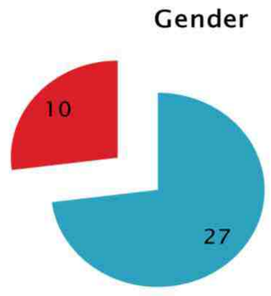
- Retrospective analysis was done on all the cases referred for short stature to pediatric endocrine facility of our hospital from January 2016 to January 2017.
- GHD -diagnosed on the basis of a GH response <10 µg/L documented by 2 GH provocation tests (clonidine followed by glucagon) in suspected GHD cases.(1,2)
- GH treatment started after detailed counseling at initial dose of 25 - 35 µg/kg/day. (1,2)
- Patients were monitored 3 to 6 monthly & also evaluated for adherence.
- The most important parameter for good response-growth response to GH therapy.(1,2)
- Regular IGF-1, glucose metabolic parameters, thyroid &adrenal functions monitoring was done.(1,2)

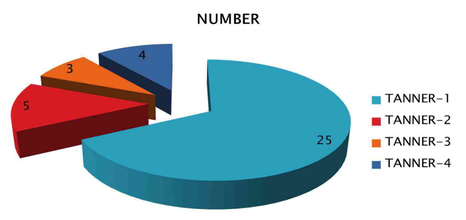
Results





Range of age -2.9 years-15.1 years
Mean age -8.6 years

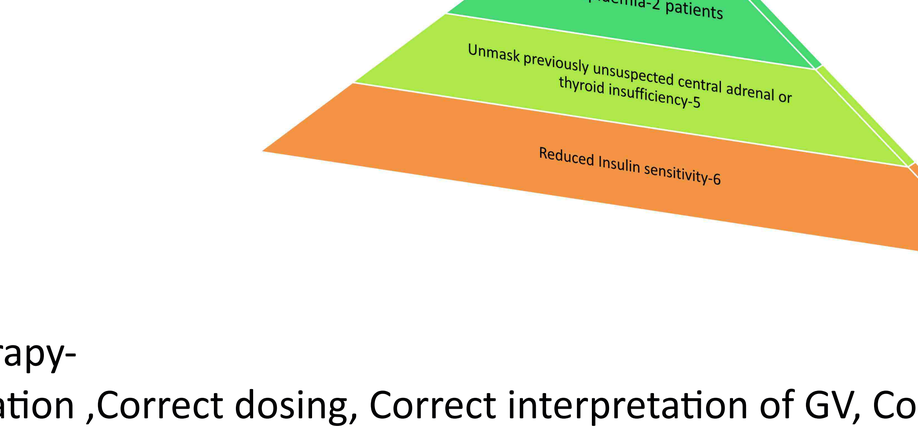




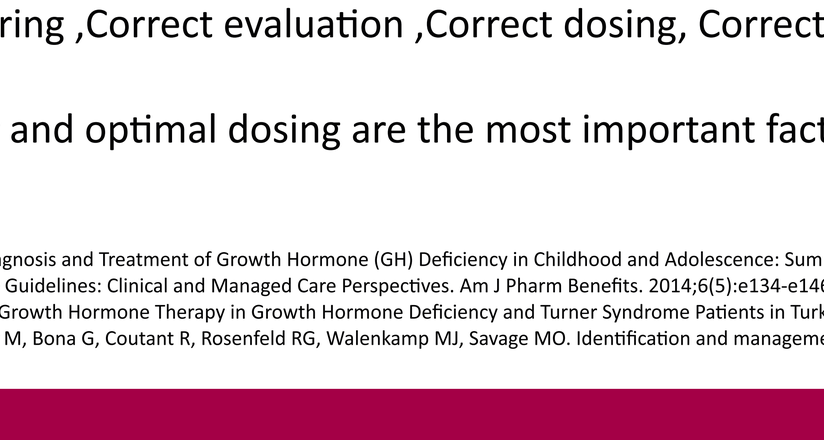
GH STIMULATION TEST RESPONSE	
Average- peak levels(ng/ml)	5.6
Range- peak levels(ng/ml)	1.2 to 9.5
No.-Peak GH<3ng/ml	4
No.-Low IGF-1 Levels*(< -2 SD)	16

*reference ranges, standardized for age and sex

MRI findings in GHD patients



GH Therapy response



First year growth response to GH

Variable	Values
Initial HT SDS	-2.89(0.7)
First year HT SDS	-1.97(1.1)
Initial GV(cm /year)	3.41(0.9)
First year GV(cm)	8.5(1.5)
Initial IGF-1 SDS	-1.6(0.85)
First year IGF-1 SDS	-0.75(0.7)
First year gain in HT SDS<0.5	21%
Initial GH dose(ug/kg/day)	29 (3.5)
First year GH dose(ug/kg/day)	35.6(5.6)

Side effects

Conclusion

6 C paramount for optimum outcome of GH therapy-

- Continuous growth monitoring ,Correct evaluation ,Correct dosing, Correct interpretation of GV, Counseling and Careful monitoring.
- Age at onset of GH therapy and optimal dosing are the most important factors for a successful treatment outcome in GH deficient patients. (3,4).

References

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3. Abalı YZ, DarendelilerF, Neyzi OA. Critical Appraisal of Growth Hormone Therapy in Growth Hormone Deficiency and Turner Syndrome Patients in Turkey . J Clin Res Pediatr Endocrinol 2016;8(4):490-495 .
4. Bang P, Ahmed SF, Argente J, Backeljauw P, Bettendorf M, Bona G, Coutant R, Rosenfeld RG, Walenkamp MJ, Savage MO. Identification and management of poor response to growth-promoting therapy in children with short stature. Clin Endocrinol (Oxf) 2012;77:169-181.