The long term outcome of congenital adrenal hyperplasia due to 21-hydroxylase deficiency at KFSHRC-Retrospective study

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Background

- Congenital adrenal hyperplasia (CAH) refers to a group of autosomal recessive inherited disorders characterized by defects in cortisol synthesis.
- 21-hydroxylase deficiency is the most commonly defective enzyme representing more than 90% of cases. Affecting 1 of 8000 live births in Saudi Arabia .
- The deficiency of 21- hydroxylase enzyme results from mutations or deletions in the CYP21A2 gene found on chromosome 6p.
- 21-hydroxylase deficiency requires life-long steroid replacement therapy.
- Without appropriate monitoring, it may result in significant complications related to over or under replacement .

Aim of the Study

Assess the health status of adolescent & adults with 21 - OH deficiency, the need for changes in **current management** of pediatric patients and to evaluate the need for endocrine spe cialist care as adult.

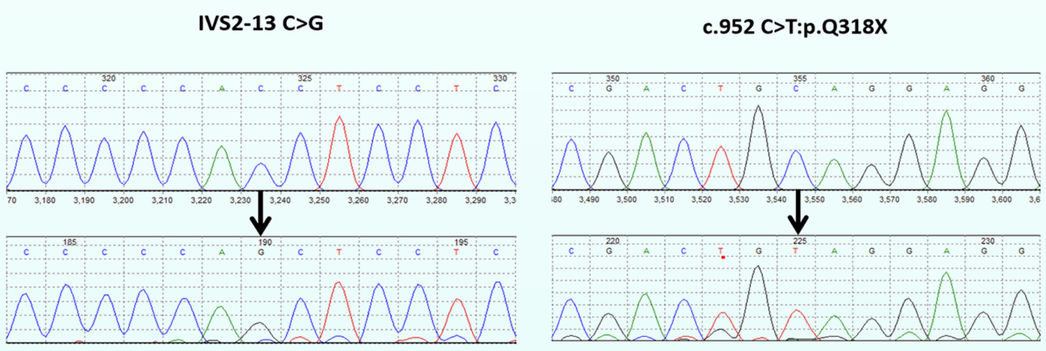
Methodology

It is a retrospective study. We reviewed medical files of all 21 hydroxylase deficiency cases still undergoing follow-up checks in pediatric clinics and are above the age of 14 years. All clinical, bio chemical, and genetic data were collected.

Results

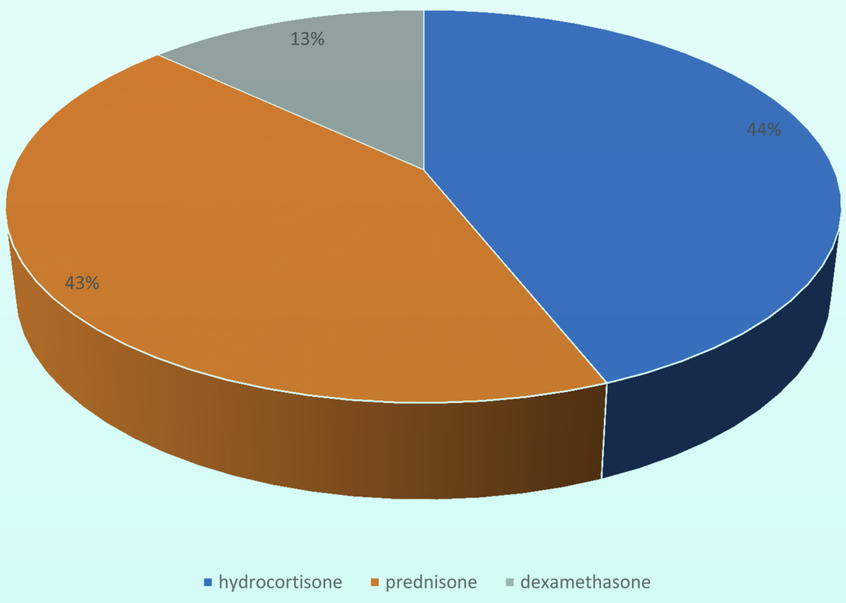
Among the 79 patients involved in the study, 70% were females. Mean age for males is 16.8 ± 4.6 (range: 15-30 years), while mean age for females is 20.3 ± 7.2 (range: 15-41).

Molecular data of patients with 21 hydroxylase deficiency



All patients with above mutation had classical salt wasting 21 hydroxylase deficiency

Current Medications

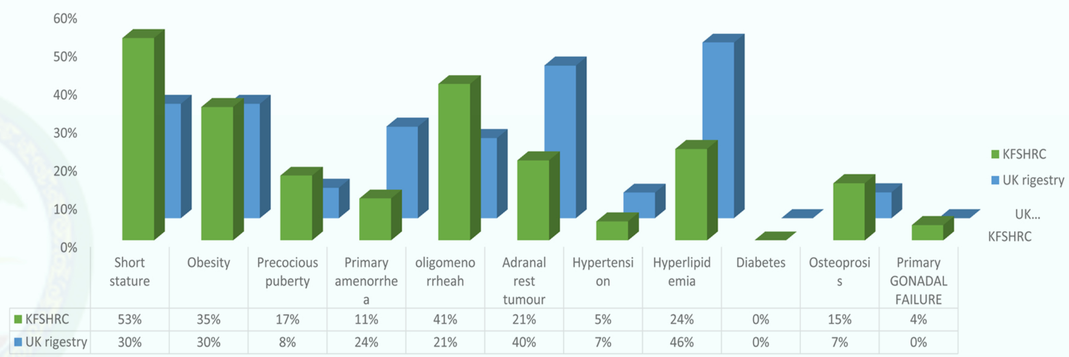


- Control of androgens was highly variable with a high serum Androstenedione found in 40% of patients, whereas 31% had suppressed levels suggesting glucocorticoid over treatment .
- 22% were severely short (< -3 SD)(final height).
- 35%were obese.
- 11% had primary amenorrhea, 21% of male patients had Adrenal rest tumors.
- 5 % had hypertension while hypercholestremia was present in 24% .
- Insulin resistance was found in nine patients out of 25 patients .
- Osteoporosis was present in 15% while osteopenia was present in 34 % .

Prevalence of complications

UK →199 with 21-hydroxylase deficiency
KFSHRC → 79 with 21-hydroxylase deficiency

Median age 34 (range 18–69) years.
Median age 20 (range 15-41) years



	Short stature	Obesity	Precocious puberty	Primary amenorrhea	oligomenorrheah	Adranal rest tumour	Hypertension	Hyperlipidemia	Diabetes	Osteoprosis	Primary GONADAL FAILURE
KFSHRC	53%	35%	17%	11%	41%	21%	5%	24%	0%	15%	4%
UK rigestry	30%	30%	8%	24%	21%	40%	7%	46%	0%	7%	0%

Conclusion

- Still long term complications related to over or under treatment are noted in majority of patients, so we recommend that these patients need to be followed by an expert Adult endocrinologists to treat their complications.
- Long-term clinical studies of recently developed treatments and exploration of novel therapeutic strategies in both children and adults with CAH are essential to determine optimal management for the future.
- Our future study is to see if there is a genotype phenotype correlation and wither we could predict from the genotype those whom need alternative medical management.

References

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