A challenging Genetic Counseling scenario: Families opting out of treatment options for a diagnosed genetic condition.

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Introduction

- After reaching a genetic diagnosis, one of the first concerns to address next is usually the therapeutic options available.
- Therapy for the majority of the genetic disorders is not available.
- Where available, it is cost-prohibitive, and dependent upon funding from the centre, state, or via compassionate programs.
- The non-availability as well as the difficulty in procuring therapy after diagnosis is regarded as the major hindrance for management.
- We present a case which exemplifies the hesitation towards applying for therapy because of the associated lifelong commitment thus highlighting the need to address this socio-cultural issue.

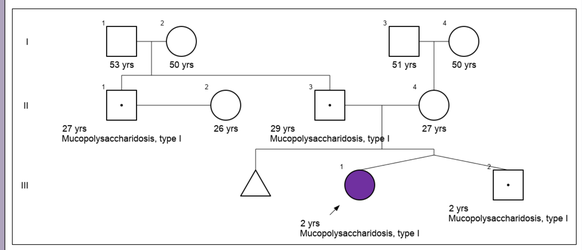
Case Details and Methodology

2 year old female was referred by a pediatric orthopedician.

Symptoms: isolated gibbus and some coarsening of facial features observed.

Developmentally NORMAL.

Clinical suspicion: Mucopolysaccharidosis / Mucolipidosis



Test Results

Based on the suspicion of Mucopolysaccharidosis (MPS), Urinary GAG analysis was recommended,

Investigation performed	Result
Urinary GAG analysis	Suggestive of MPS Possible types: I, II, IV, VI, or VII.

Subsequently, genetic testing of the proband was completed, followed by testing of the twin brother after the proband's results.

Genetic Testing Results	Test completed	Variant details	Zygosity	Status
Proband	Whole exome sequencing	c.1469T>C (p.Leu490Pro) Gene: IDUA	Homozygous	Affected
Twin brother	Single gene sequencing		Heterozygous	Carrier

Counseling

- Diagnosis and natural history of disease was explained.
- Benefits of early diagnosis was highlighted.
- Therapy was discussed as

Management:
- Supportive care: Physiotherapy, regular monitoring of any symptoms and complications
- Enzyme replacement therapy
- Bone marrow transplant

- Patient referred to the nearest center for excellence: KEM Hospital. Mumbai

Parental concerns after visit to the COE

- Though they did understand that procuring the enzyme was difficult and not guaranteed, the family expressed a wish not to process the application anyway. Given the fact that the child has been diagnosed this early - this was surprising!
- They disclosed that frequent traveling to the COE for enzyme replacement therapy will not be possible.
- They also revealed that the therapy required a lifelong commitment which was perceived as DIFFICULT by the elders

Bone marrow transplantation

- Hematopoietic stem cell transplantation (HSCT) for children with MPS 1 helps with improvement in their clinical course, with the age of treatment initiation playing an important role in the degree of improvement – the earlier initiated the better.
- The parents were thus encouraged to meet a BMT specialist since proband's dizygotic twin was an unaffected carrier as an alternative option.
- Family was unwilling to do so as they did not want to subject the unaffected sibling to any kind of medical procedure: He should not bear the burden of her disease
- Hence currently only supportive management initiated.

The larger outlook

- This case exemplifies the simultaneous need of infrastructure development so as to improve accessibility to affected patients.
- Though establishment of the COE is a welcome step, there is a need to understand other seemingly hidden factors which may prevent equal accessibility to treatment.

References

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