EDITORIAL

Hunting for Mutations in Indian Patients with Hunter Syndrome

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Hunter syndrome, also known as mucopolysaccharidosis type II, is an X-linked lysosomal storage disease predominantly affecting the central nervous system, bones, heart and lungs in a progressive manner. Affected individuals also have coarse facial features and joint contractures, but the severity of all manifestations is highly variable. Supportive care was the only therapeutic option until recently when enzyme replacement therapy became available. Hematopoietic stem cell transplantation is another treatment option for these patients. As is true for most genetic diseases, the exact incidence and prevalence rates for this condition in India is not known, though it is expected that India has one of the largest burden of genetic disorders [1]. Enzyme replacement therapy is very expensive at present and is beyond the reach of most. Prenatal diagnosis is an option considered by many Indian families for this condition.

As a practicing clinical geneticist and researcher, I often find that mutation data are scarce for Indian patients, even for common genetic conditions. Databases for normal sequence variations also highly under-represent the Indian scenario. This under-representation puts clinicians and researchers in a very tough situation to decipher the pathogenicity of DNA sequence variations that they encounter during diagnostic testing and research. Most often, we end up extrapolating data from rest of the world and apply it to our population, which is not ideal.

Identifying mutations in a genetic disease not only helps us confirm the diagnosis, but it also enables definitive prenatal diagnosis for the families. In this issue of *Indian Pediatrics*, Narayanan,*et al.* [2] present the clinical profile and mutation spectrum of Indian patients with Hunter syndrome. Though the number of study children is very small, this is probably the way to begin addressing these rare genetic disorders in our country. Several earlier publications have suggested that Indians might have unique or private mutations for monogenic disorders [3-5]. Further, India being the second most populous country in the world, provides a great opportunity for creation of disease-specific mutation databases. In fact, we now have some publications describing the largest series of patients with mutations in the genes studied [3,6-9]. Genetic studies on lysosomal storage diseases are now facilitated by the National Task Force on Lysosomal Storage Diseases established by the Indian Council of Medical Research, New Delhi. I hope these efforts culminate in much needed mutation data for Indians with these genetic conditions thus facilitating their diagnosis, management and prevention.

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REFERENCES

1. Verma IC. The burden of genetic disorders in India. Southeast Asian J Trop Med Public Health. 1995;26 (suppl 1):3-4.
2. Lakshmi Narayanan D, Srivastava P, Mandal K, Gambhir PS, Phadke SR. Hunter syndrome in Northern India: Clinical features and mutation spectrum. Indian Pediatr. 2016;53:134-6.
3. Bidchol AM, Dalal A, Shah H, S S, Nampoothiri S, Kabra M, *et al*. GALNS mutations in Indian patients with mucopolysaccharidosis IVA. Am J Med Genet A. 2014;164A:2793-801.
4. Tamhankar PM, Mistri M, Kondurkar P, Sanghavi D, Sheth J. Clinical, biochemical and mutation profile in Indian patients with Sandhoff disease. J Hum Genet. 2015; doi: 10.1038/jhg.2015.130. [Epub ahead of print]
5. Uttarilli A, Ranganath P, Jain SJ, Prasad CK, Sinha A, Verma IC, *et al*. Novel mutations of the arylsulphatase B (ARSB) gene in Indian patients with mucopolysaccharidosis type VI. Indian J Med Res. 2015;142:414-25.
6. Bidchol AM, Dalal A, Trivedi R, Shukla A, Nampoothiri S, Sankar VH, *et al*. Recurrent and novel GLB1 mutations in India. Gene. 2015;567:173-81.
7. Ankleshwaria C, Mistri M, Bavdekar A, Muranjan M, Dave U, Tamhankar P, *et al*. Novel mutations in the glucocerebrosidase gene of Indian patients with Gaucher disease. J Hum Genet. 2014;59:223-8.
8. Bhavani GS, Shah H, Dalal AB, Shukla A, Danda S, Aggarwal S, *et al*. Novel and recurrent mutations in WISP3 and an atypical phenotype. Am J Med Genet A. 2015;167A:2481-4.
9. Bhavani GS, Shah H, Shukla A, Gupta N, Gowrishankar K, Rao AP, *et al*. Clinical and mutation profile of multicentric osteolysis nodulosis and arthropathy. Am J Med Genet A. 2015;doi: 10.1002/ajmg.a.37447. [Epub ahead of print]