GeNeDit

# Changing Scenario of Monogenic disorders: Untreatable to Treatable

## Editorial

Monogenic disorders are ignored by clinicians as rare and mostly untreatable disorders. Emergence of recombinant DNA technology showed a great hope for cure by gene therapy. I remember telling patients with beta thalassemia about the possibility of cure by gene therapy in the nineties. Instances of hope and hype of gene therapy marked the last 3 decades. But 2017 and 2018 have shown consistent success stories of gene therapy in varied disorders, namely beta thalassemia, blindness, epidermolysis bullosa, etc. The GenExpress in this issue brings glimpses of these landmark papers. Visionaries in the field envisage successful gene therapy for at least 40 disorders in the next 5 years. This will bring a paradigm change in the approach to these rare, more than 6000 genetic disorders affecting 5% of the population. Early diagnosis by prenatal or neonatal testing and pre-symptomatic management may become the dictum. The power of Next Generation Sequencing is at the service of the Next Generation Geneticists and will be at the centre stage of health management. Though it is very difficult to imagine the approach to monogenic disorders in the next decade, one important step will be to decrease the need of medical termination of pregnancy which is the mainstay of current preventive strategy. Though it is accepted legally and is common, one can never ignore the emotional trauma to the family and the debatable nature of the ethical aspects related to it. Often, patients' families consider that prenatal diagnosis will open up the option of treatment because of early diagnosis; soon that dream may come true.

Gene therapies for lysosomal storage disorders and other drugs like chaperones, small molecules, etc. were discussed in two recently held conferences in New Delhi – the Third South Asia & 19th Asia LSD Symposium, 2018 and Recent Advances in Rare Diseases (RARD 2018). These two conferences highlighted the latest developments in the field of rare diseases. International experts presented their latest work and shared their exhaustive experience with Indian clinicians and scientists.

Gene therapy with adjunct novel therapies including fetal stem cell transplantation may make cure possible for neurodegenerative disorders. Of course, novel or disease-modifying therapies may bring up changing phenotypes hitherto unknown to us due to the short lifespan of many of these patients. New medical, scientific, ethical and emotional issues are bound to emerge. Better genotype-phenotype correlations and knowledge of modifier genes is essential for the disorders detected by newborn screening in families without history of genetic disorders. The practice of Clinical Genetics has always been a bit different in many aspects as compared to other clinical specialties and now, it may have more challenges. At the same time, all clinicians will have to give more time and attention to rare disorders, as no one can afford to miss the diagnosis of a treatable disorder. Our goal is to provide updates in medical genetics and we are happy to pursue it at this juncture of more opportunities for rare monogenic disorders.

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