Hidden pain

More than 70 million people in India suffer from rare diseases. Awareness about these ailments, however, is limited and treatment, often expensive, is hardly available

BY RUTH DSOUZA PRABHU

Rekha and Jayanth Gouda are siblings born into an average middle-class family in Mandya, Karnataka. Nothing seemed amiss till Jayanth developed a lump on his back at age two. The family consulted many doctors but there was no clear diagnosis. As Jayanth turned four, his growth did not meet the regular milestones. By now, two-year-old Rekha began showing the same symptom. Yet again, doctors were unable to find a cause, cure or even a name for the ailment. One doctor did suspect a rare disease, but with no means of confirming this suspicion, things remained the same. When Jayanth turned 18 and Rekha 16, a doctor in Chennai had their lab tests sent to Taiwan. The siblings were diagnosed with mucopolysaccharidosis I (MPS I), a rare disease.

This genetic disease occurs when both parents pass a damaged gene to their child. MPS I is a degenerative disease which leads to physical deformity, shorter-than-average height, knock knees, a curved spine and several other complications arising with each passing year.

Rekha and Jayanth have been confined to the wheelchair that they share. Not allowing life to weigh them down, they completed their engineering studies and today work at an MNC in shifts, so both can make use of their wheelchair to remain mobile. "There is no cure for this disease," says Rekha. "A treatment called Enzyme Replacement Therapy is available in the US, however with costs exceeding ₹1 crore, it is not something we can think about. The therapy will arrest this ailment at the current stage and we can go on with life. Currently we take medication for the multiple issues that we have, only to alleviate symptoms. With each passing year something else in our body gives up—we both have hearing aids now."

What are rare diseases?

While most of us know of cancer and many other diseases, a majority of us may never have heard of osteogenesis imperfecta or brittle bone disease, which affects 1 in every 15,000 people; or Gaucher's disease, which leads to unfathomable fatigue, bruising and anaemia.

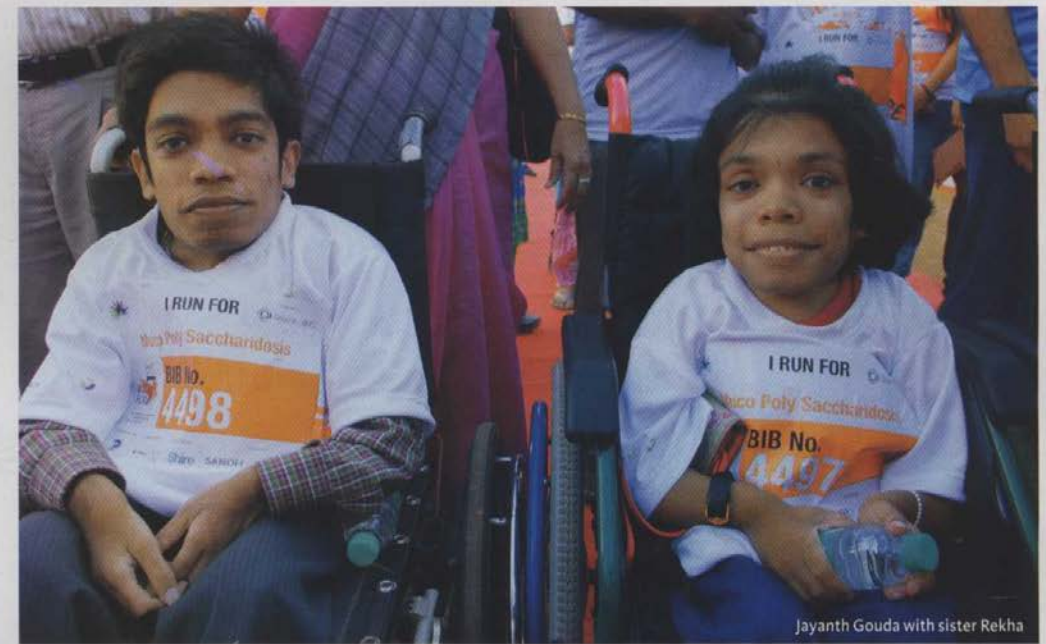
Globally, there are 7,000 diseases that are categorised as rare diseases, says Dr Namitha Kumar, research director, Centre for Health Ecologies and Technology, Bengaluru. Their prevalence varies from country to country. For example, in the US, the occurrence could be 1 in 10,000. But if you apply that to the Indian population, where currently around 70 million people suffer from rare diseases, the prevalence would be 1 in 4,000.

She adds that while it is difficult to pinpoint how many of these rare diseases are currently prevalent in India, according to some documented sources there are around 452. Eighty per cent of rare diseases are genetic—single or double gene disorders. The remaining 20 per cent are autoimmune diseases.

According to Dr Meenakshi Bhat, professor and senior consultant in clinical genetics, Bangalore Fetal Medicine Centre and Indira Gandhi Institute of Child Health and Centre for Human Genetics, an absolute number of people suffering from each rare disorder is not known. "Several initiatives are being commenced to determine

Rare and disabling

- Progressive multifocal leukoencephalopathy (PML), a neurological disorder affecting the white matter of the brain.
- Dercum's Disease, which results in the growth of multiple painful fatty tissues.
- Fahr's Disease, which causes large amounts of calcium deposits in the brain.
- Neuromyelitis Optica, which causes inflammation of the optic nerve and spinal cord.
- Landau Kleffner Syndrome results in loss of comprehension and verbal language.
- Alpha-1 Antitrypsin Deficiency (A_1AD), a hereditary protein deficiency that can cause emphysema, liver disease and rare skin ailments.
- Cyclic Vomiting Syndrome that induces repeated episodes of nausea and vomiting.
- Spinal Muscular Atrophy affects nerve cells leading to progressive muscle weakness and wasting.



Jayanth Gouda with sister Rekha

the epidemiology and establish total numbers of the most frequently occurring rare disorders," says Meenakshi. "Rare disorders can affect anybody. However, some communities or populations may have a higher incidence of certain genetic disorders. Also, marriage between close blood relatives doubles the risk of having a baby with a rare disorder."

Dr Vijay Chandru, chairman and MD, Strand Life Sciences, Bengaluru, and head of the Rare Diseases Drafting Committee believes that there could be many more diseases that fall under the rare disease category, but have not been listed. Some of the most common rare diseases observed in India are haemophilia, lysosomal storage disorders, thalassemia, cystic fibrosis, muscular dystrophies, primary immune-deficiency related disorders, and neuro-muscular disorders. "Rare diseases are most prevalent in populations where there is a high degree of consanguinity as a result of marriages within the family. This could be one of the major reasons why we see so many rare disease patients in India," he says.

Since rare diseases are largely genetic, they are present in a person's body right from birth. The symptoms, however, may not manifest for quite a few years.

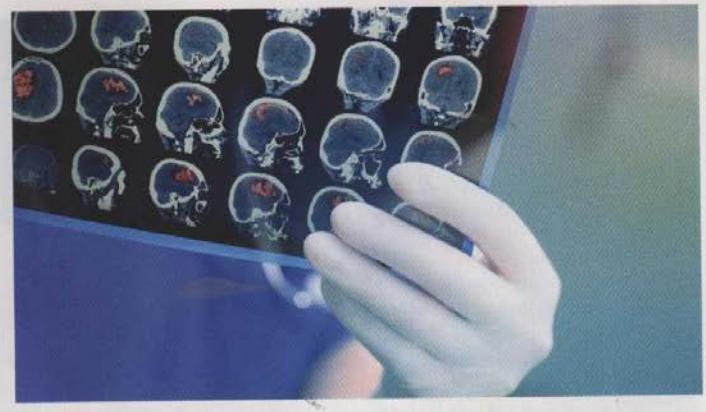
Take the case of bestselling author and motivational speaker Ramgopal Vallath. "The first symptoms appeared when I was 34 and at the height of my successful career as the youngest COO in the telecom industry," says Ramgopal. "It started with slight tremors of the hands and slight loss of balance. Over the next seven years, my condition gradually kept declining

Help at hand

The Centre for Human Genetics, Bengaluru, has evaluated and maintained records of nearly 18,000 patients with rare disorders since the last 10 years, says Dr Meenakshi Bhat, professor and senior consultant in clinical genetics, Bangalore Fetal Medicine Centre. "The Organization of Rare Disorders India (ORDI) is an umbrella organisation which operates as a helpline for patients and families with rare disorders," she says. "There is a Centre of Excellence for management of rare disorders and a Rare Disorders Ward newly established at Indira Gandhi Institute of Child Health, Bengaluru, to provide therapy for patients with rare diseases. The majority of these patients are being treated without the families having to pay for the expensive treatments. This has become possible because of the Charitable Access Programme of some companies manufacturing treatments for rare diseases and from the initiative of the Karnataka government in providing funds for therapy for some of the rarest disorders since 2016 to patients from low socio-economic background. The state government initiative is the first of its kind in India."

Know well ahead

Clinical gene testing can be of help when it comes to the management of rare diseases. Dr Vijay Chandru, chairman and MD, Strand Life Sciences, Bengaluru, illustrates the example of a young couple who had lost a male child to epidermolysis bullosa (EB) to demonstrate this. "They were planning another pregnancy, but were anxious," says Vijay. "Our genetic counsellors suggested that the couple undergo rare disease test to identify if they carry the genetic changes responsible for EB, and if the next pregnancy could be at risk. The test revealed that the mother and father carried a genetic change (a copy of the bad gene but they remained unaffected) which gave rise to EB in the child. Parents who are carriers for this genetic change have a 25 per cent chance of passing on bad copies of the gene during a pregnancy. Based on the test results, the couple was advised to undergo prenatal diagnosis (genetic test of the foetus) for all future pregnancies. The mother conceived shortly after this. Prenatal testing revealed that the baby was a carrier just like the parents and hence would not be affected."



till I found it difficult to use my hands and legs even for mundane tasks such as walking, climbing up steps or buttoning my shirt. Finally, when the condition was diagnosed as CIDP (chronic inflammatory demyelinating polyneuropathy), an autoimmune disorder that affects the peripheral nerves of the body, I was in very bad shape. The standard treatment of IVIG (intravenous immunoglobulin) infusion every 45 days at a cost of ₹6 lakh per infusion, and steroids, had limited efficacy and huge side effects. What finally helped me was a clinical trial being conducted by Dr Richard Burt of Northwestern Memorial Hospital, Chicago. The clinical trial completely changed my life—it rebooted my body, reversed the condition 90 per cent, and helped me reinvent my life."

Challenges and possible solutions

People suffering from rare diseases will tell you how diagnoses alone can take several years. The challenges are plenty, says Prasanna Shirol, co-founder of Organization for Rare Diseases India (ORDI). His daughter, Nidhi Shirol, suffers from the rare Pompe disease, which prevents organs from functioning normally. "The delay in diagnoses forces parents to visit different doctors spending huge amounts of time and money," says Prasanna. "The fact that there is no health care policy or relevant insurance or access to early and affordable treatment makes this all the more difficult. With most rare diseases being progressive, the challenges in supportive care and life long management issues can take their toll."

Even the latest draft of the National Health Policy has no reference to genetics, points out Namitha. "The government as well as the health ministry has to create a robust policy that gives the sector its due importance. Awareness levels are low, primarily because we have a dearth of documented and well-researched cases. Doctors, too, are largely unaware of ailments," she says.

Meenakshi believes that the only way to systematically address the needs of all the patients suffering from rare diseases is to evolve a rare disease policy for each state which will address all issues, from diagnosis to therapy, comprehensively, at a family and societal level. In Karnataka, the draft rare disease policy is ready and is going through the final stages of approval.

At the macro-level, Vijay suggests, incentives in the form of tax subsidies and fast-tracking in regulatory pathways for the indigenous development of orphan drugs, and therapeutic strategies and regenerative therapies for rare disease patients need to be taken up.

There is also a need for insurance and CSR endowment schemes for public health funding for these patients and their families. Namitha adds that individual support groups of various rare diseases need to come together under one umbrella at the Central level. Collective advocacy is what is required.

Today, the availability of diagnostics and treatment for rare diseases is limited in the country. Considering the fact that, globally, the number of orphan drugs for 7,000 known ailments is just about 500, a large number of diseases have no treatment support at all.

Additionally, in most cases, drugs at best, alleviate symptoms. There is an urgent need for more dedicated research as well as investment in diagnosis, treatment and cures for rare diseases. □