

The neurofibromatosis: which one and why?

As neurofibromatoses: qual e por quê?

Vincent M. Riccardi

MD, MBA, The Neurofibromatosis Institute, California, USA.

Correspondence:

Vincent M. Riccardi,
The Neurofibromatosis Institute,
La Crescenta, California 91214 USA.
E-mail: riccardi@medconsumer.com

Conflict of interest:

There is no conflict of interest to declare.

Received 08 January 2014
Accepted 15 January 2014

The number of people in the world with neurofibromatosis (NF) NF1 almost equals the population of Belo Horizonte, Brazil. Taking the entirety of Brazil into account, based on an NF1 prevalence of 1/3000 and a 2012 Brazilian population estimate of 197,800,000, presently there are 65,900 Brazilians with NF1. Adding in Brazilians with NF2 and Schwannomatosis, we must acknowledge more or less 70,000 persons with some type of NF in Brazil and thereby recognize this fact to be a substantial challenge to the country's health care resources. And both distinguishing NF from other disorders and differentiating of NF1, NF2 and Schwannomatosis from each other are the first steps in meeting that challenge. To this end, on this issue of *Arquivos de Neuro-Psiquiatria*, the *Sociedade Brasileira de Pesquisa em Neurofibromatoses*¹, including the Recklinologist *par excellence*, Rodrigues LOC^{2,3}, have begun the task of enhancing the clinical diagnosis and management of this complex set of disorders. This enhancement presumes that both the immediate and long-term care of persons with NF1 must and will be shared by specialist Recklinologists and their partners in primary care and other specialties.

On the one hand, it is critically important to itemize and understand the inter-relationships of the various elements of NF1 on their own. On the other hand, realizing how those elements relate to the respective ages of the persons with each of the several NF disorders, may also contribute to their individual health care and to the understanding of the disorder's pathogenesis in more general terms. For example, virtually everyone with NF1 will manifest café-au-lait spots (CLS) in the first year of life, while an NF2 vestibular schwannoma may not be obvious until the affected person's 3rd decade or later. And persons affected by Schwannomatosis may only develop problems that appear well beyond childhood and are much more non-specific, such as pain without an otherwise apparent cause.

Reliance on clinical symptoms and signs is at least laudable, and, I would say, commendable. Nonetheless, in at least some problem cases, resort to genetic analyses may be especially contributory, specifically assessing mutations in or deletions (loss) of the NF1 locus on the long arm of human chromosome 17⁴, the NF2 locus on the long arm of human chromosome 22 or the *SMARCB1* locus also on the long arm of human chromosome 22. In addition, somatic mosaicism – especially when there are minimal or topographically limited signs and symptoms – may be a factor in both diagnosis and prognosis, a consideration numerically most important for NF2. And beyond mutational heterogeneity and mosaicism there is also the matter of overlap with disorders utterly distinct from NF1, NF2 and Schwannomatosis. For example, for a very young child with CLS as the sole or primary finding, identifying or discounting a mutation of the *SPRED1* locus on the long arm of human chromosome 15 may be very helpful for both the child's parents and the concerned physician.

Planning for the present and the future is the key. Accurately establishing both the fact of NF and its type at the present time allows the clinicians, the affected person and his or her family to make the most realistic plans for the future. Batista, et al., declare those goals and thoughtfully contribute to their being reached.

References

1. Sociedade Brasileira de Pesquisa em Neurofibromatoses. Neurofibromatosis: part 1 - diagnosis and differential diagnosis. *Arq Neuropsiquiatr* 2014;72.
2. Rodrigues LO, Rodrigues LOC, Castro LL, Rezende NA, Ribeiro AL. Non-invasive endothelial function assessment in patients with neurofibromatosis type 1: a cross-sectional study. *BMC Cardiovasc Disord* 2013;13:18.
3. Faria LPG, Rodrigues LO, Diniz LM, Rezende NA, Rodrigues LOC. Prevalência de um fenotipo inédito na Neurofibromatose do Tipo 1 - Dados preliminares. *Revista Médica de Minas Gerais* 2012;22:363-368.
4. Ko JM, Sohn YB, Jeong SY, Kim HJ, Messiaen LM. Mutation spectrum of NF1 and clinical characteristics in 78 Korean patients with neurofibromatosis type 1. *Pediatr Neurol* 2013;48:447-453.