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A newly described mutation of the CLCN7 gene causes neuropathic autosomal recessive osteopetrosis in an Arab family.

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Abstract

Neurologic manifestations in osteopetrosis are usually secondary to sclerosis of the skull bones. However, a rare neuropathic subtype of osteopetrosis exists that resembles neurodegenerative storage disorders. Unlike other forms of osteopetrosis, this latter form does not respond to hematopoietic stem cell transplantation. Preliminary studies suggest that this neuropathic form is more likely to be caused by mutations in the CLCN7 gene in an autosomal recessive manner. This study provides further evidence for this phenotype-genotype correlation by presenting a previously unreported mutation in the CLCN7 gene in a Yemeni family with the neuropathic form. This is also the first study of any mutation in patients with osteopetrosis of Arabic ethnicity. As literature review suggests that this type may be more common in Arabs, cascade genetic screening of early onset of autosomal recessive-osteopetrosis in patients of Arabic ancestry may preferably start with the CLCN7 gene rather than the TCIRG gene as is routinely done in clinical laboratories. Identifying a mutation in the CLCN7 gene in a patient with early onset of autosomal recessive-osteopetrosis may also guide therapeutic decisions including the option of hematopoietic stem cell transplantation