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Treating mitochondrial disorders requires full exploitation of available therapeutic options

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We read with interest the review by El-Hattab et al. about treatment options for mitochondrial disorders (MIDs) [1]. We have the following comments and concerns.

Though the review discusses some of the possible interventions in MIDs, a number of treatment options has not been addressed. Concerning CNS abnormalities, the option of antiepileptic drug (AED) therapy should be discussed, since many of the MIDs, particularly pediatric MIDs, present with various types of epilepsy. Discussion of the AEDs is crucial since some of them are mitochondrion-toxic and should not be applied at all or at least not as first-line therapy [2]. Particularly adult MIDs may go along with Parkinson's disease and respond favorably to anti-Parkinson medication or deep brain stimulation. Dystonia is a frequent CNS abnormality in MIDs and requires botulinum toxin or deep brain stimulation. Concerning the ocular abnormalities, cataract surgery and anti-glaucoma treatment should be mentioned. Endocrine abnormalities also include thyroid and parathyroid dysfunction, hypocorticism, and hypogonadism and respond to adequate hormone substitution [3]. Cardiac involvement, particularly cardiomyopathy with heart failure, responds to heart failure therapy and in case of ineffectivity, heart transplantation should be considered [4]. Nothing is reported about the treatment of nephrolithiasis or renal insufficiency. Hematological problems may require transfusions or stimulation of precursor cells. A frequent problem is muscular respiratory insufficiency requiring artificial ventilation. Concerning the additional drug therapy, carnitine substitution in secondary carnitine-deficiency needs to be mentioned. Ketogenic diet can be beneficial in drug-resistant mitochondrial epilepsy [5].

Overall, there are more therapeutic options for MIDs available than discussed. Because of the multisystem nature of MIDs a multidisciplinary approach including options for each of the affected organs should be chosen. A multidisciplinary approach is necessary since MIDs are multiorgan disorders either already at onset of the clinical manifestations or later in the disease course.

Conflicts of interest

There are no conflicts of interest.

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Author contribution

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