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Letter to the Editor

Author reply to letter to editor "melatonin as fetal neuroprotection: Links and risks"

Reyin Lien [a,b,*]

[a] Division of Neonatology, Department of Pediatrics, Chang Gung Memorial Hospital at Linkou, Taoyuan, Taiwan
[b] College of Medicine, Chang Gung University, Taoyuan, Taiwan

This letter is in response to the letter by Drs. Ghotbizadeh, Hantoushzadeh, and Nazari, which complemented on my review of neurocritical care of premature infants [1] and elaborated on melatonin as a pharmacological agent for the prevention of preterm brain injury. I appreciate their interest in this article and feel encouraged to share our common enthusiasm towards safe-guarding the health of preterm survivors. Dr. Nazari's insightful comments on melatonin as fetal neuroprotection is also well-received.

Melatonin has been considered as one of the most promising molecules for neuroprotection in preterm infants not only due to its potent anti-oxidative/-excitotoxic and anti-inflammatory properties, but also because preterm infants are short of melatonin in their system. Being lipophilic, melatonin crosses most biological barriers readily, including placenta and blood–brain-barrier. Preclinical studies also showed that short term melatonin therapy has a good safety profile both in animals and in humans [2]. However, there have been only 2 clinical trials so far. Results of the multicenter therapeutic trial, 'PREMELIP' carried out in France, of prenatal administration of melatonin in preterm labor to reduce neonatal white matter injury (ClinicalTrials.gov Identifier: NCT02395783) is still pending, and hence the appropriate treatment dosage and the treatment efficacy is uncertain. Another phase II clinical trial 'MIND', Melatonin As A Novel Neuroprotectant In Preterm Infants-Dosage Study (ClinicalTrials.gov Identifier: NCT00649961), aiming to evaluate the use of melatonin in addition to standard intensive care in protecting preterm brain injury, has not given major conclusion on the treatment efficacy either. Results from the above trials indicate that the optimal dose of melatonin, or even the combined therapy of melatonin and other neuroprotective agents (such as erythropoietin) for preterm infants still needs further investigation [3].

In conclusion, so far neuroprotective efficacy of melatonin in animals, either given prenatally through the mother or postnatally to the infant, needs to be shown in humans before we can widely apply this as a clinical neuroprotection strategy [4].

Conflicts of interest

The author declares no conflicts of interest.

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* Corresponding author. Division of Neonatology, Department of Pediatrics, Chang Gung Memorial Hospital at Linkou, 5, Fusing St., Gueishan, Taoyuan 333, Taiwan.
E-mail address: reyinl@adm.cgmh.org.tw.

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