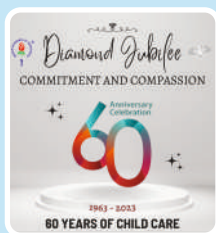


Indian Academy of Pediatrics (IAP)



nRICH

Newer Research and recommendations In Child Health

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Dear fellow IAPans,

nRICH

Newer Research and recommendations In Child Health-aims to bring you the abstracts of some of the breakthrough developments in pediatrics, carefully selected from reputed journals published worldwide.

Expert commentaries will evaluate the importance and relevance of the article and discuss its application in Indian settings. nRICH will cover all the different subspecialties of pediatrics from neonatology, gastroenterology, hematology, adolescent medicine, allergy and immunology, to urology, neurology, vaccinology etc. Each issue will begin with a concise abstract and will represent the main points and ideas found in the originals. It will then be followed by the thoughtful and erudite commentary of Indian experts from various subspecialties who will give an insight on way to read and analyze these articles.

I'm sure students, practitioners and all those interested in knowing about the latest research and recommendations in child health will be immensely benefitted by this endeavor which will be published online on every Monday.

Happy reading!

*Upendra Kinjawadekar
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Ocular Toxicity of Ethambutol During Both Intensive and Continuation Phases of Anti-Tubercular Therapy in Children

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BASED ON ARTICLE

Sushant S Mane, Anindita Mandal, Manas Pustake, Mohammad Kashif Ali, Nisha Yadav From State Pediatric Center of Excellence for TB, Grant Government Medical College and Sir JJ Group of Hospitals, Byculla, Mumbai, Maharashtra 400008.

OBJECTIVE

The study was conducted to evaluate the ocular toxicity of ethambutol given in both intensive and continuation phases of treatment in children with drug-sensitive tuberculosis. Methods: A prospective study of 94 eyes from 47 patients receiving an ethambutol-containing regimen was conducted between 1 December 2018 and 31 August, 2020. Visual acuity, visual field, visual evoked response (VER), contrast sensitivity, colour perception, and retinal nerve fiber layer (RNFL) thickness [using optical coherence tomography (OCT)] were tested for each patient before, during, and after the treatment. Results: On follow-up, visual acuity, color vision, contrast sensitivity, fundus, and visual fields were not affected in any of the patients. There was no statistically significant increase in the mean latency of the P(100) wave at any point in time. On OCT, no significant loss of mean RNFL thickness was detected. Conclusions: Ethambutol is safe to use up to a dose of 20 mg/kg/day throughout the entire course of anti-tubercular therapy in children with drug-sensitive tuberculosis.

SUMMARY

It is a well known fact that Ethambutol use may lead to permanent vision loss by inducing a dose- and duration-dependent optic neuropathy. Recently, the guidelines of the Revised National Tuberculosis Control Programme of India have been revised to allow for fixed dose and longer duration of ethambutol use; this is likely to result in an increase in vision-threatening adverse effects. Taking cognizance of this, neuro-ophthalmologists, infectious disease specialists, and scientists met under the aegis of the Indian Neuro-Ophthalmology Society to deliberate on prevention, early diagnosis, and management of ethambutol-related toxic optic neuropathy. The recommendations made by the expert group focus on early suspicion of ethambutol toxicity through screening at the physician's office and opportunistic screening by the ophthalmologist. Further, they focus on an early diagnosis through identification of specific clinical biomarkers and on management in way of early stoppage of the drug and supportive therapy.

Toxic optic neuropathy may occur at any time interval after use of ethambutol, but most often, it is seen after 3–5 months of use. While ethambutol toxicity generally occurs with doses higher than 15 mg/kg, it has also been reported in lower doses; therefore, all patients on ethambutol treatment need to be monitored for ocular toxicity.

The experts recommend a few ocular investigations, particularly the visual fields (automated 24- or 30-degree fields) and visual evoked potential (VEP) (pattern VEP preferred over flash). Additionally, other investigations such as color vision, contrast sensitivity, and optical coherence tomography (OCT) should be done, where possible. The ophthalmologist should specifically look out for the presence of central or centrocecal scotoma in the visual fields, prolonged latency, and reduced amplitudes on VEP, and relative symmetry in both eyes.

In the above study they have included the recommended investigations namely VEP & OCT before, during and after completion of Anti Tuberculous Treatment and there was no evidence of Ocular toxicity.

Recommendations:

- There is a need to increase awareness in physicians who are prescribing ethambutol and in patients who are taking the treatment about the potential ocular toxicity of the drug.
- While prescribing ethambutol, Pediatricians should inform their patients about the need to notice any changes in their vision.
- The specific recommendations for Pediatricians include the need to document the history of any pre-existing visual or ophthalmic complaints at the initiation of treatment, and if present, the patient should be referred for ophthalmic evaluation before initiation of the treatment.