Optic Neuritis in Children in a Private Hospital: Improving Outcomes

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Introduction: Optic neuritis is a demyelinating inflammatory disease of the optic nerve usually affecting young adults between 18 and 45 years of age.[1] It could lead to both visual and rarely, systemic morbidity from multiple sclerosis especially in Caucasians.[1]Vision loss is usually monocular, however, involvement of both eyes can occur, especially in children.[2] There was no well established guidelines for treatment of optic neuritis prior to the Optic Neuritis Treatment Trial (ONTT) as some experts advocated treatment with oral prednisone alone while others recommended no treatment.[3,4]The current treatment for acute optic neuritis is intravenous methylprednisolone followed by oral prednisolone.[3]

Case Report: *Patient A:* A twelve -year old boy, who presented with sudden drop of vision in the left eye(LE) of one day duration with associated peri-ocular pain, worse on eye movement. There was no associated fever and no history of weakness in any part of the body. He weighed 39kg. Ocular examination at presentation revealed distance visual acuity (VA) of 6/9and "counting fingers" at one meter in the right eye (RE) and left eye (LE) respectively, Near Visual Acuity was N5 and N6 in the right and left eyes respectively. He had normal anterior segment examination in the right eye while the left eye had grade one relative afferent pupillary defect (RAPD). The intraocular pressure was normal bilaterally. The posterior segment examination was normal bilaterally.

Upon colour vision testing using the Ishihara pseudo-isochromatic colour vision plates, he identified 15 plates and 12 plates with the right and left eyes respectively. Contrast sensitivity was assessed with the Pelli Robson chart and revealed contrast sensitivity of 80% and 60% right and left eyes respectively . Central Visual Field (CVF) 24-2 revealed central scotoma in the right eye and severely depressed field on pattern deviation in the left eye. This prompted a CVF 10-2 of the left eye which revealed a central scotoma. The baseline Electrolytes, Urea and Creatinine (E, UR and CR) was normal

Patient B: A thirteen year old girl, who presented with sudden drop of visionin both eyes of one week duration with associated right peri-ocular pain and headache, worse on eye movement. There was no associated fever and no history of weakness in any part of the body. She had similar episode involving the left eye 2 years ago which was managed with oral steroids. She weighed 42kg. Ocular examination at presentation revealed distance VA of "counting fingers" at three meter and "counting fingers" at one in right and left eyes respectively. She had normal anterior segment examination in the right eye while the left eye revealed grade three RAPD. The intraocular pressure was normal bilaterally. Fundoscopy revealed disc oedema , with disc heamorrages and normal macular in the right eye while she had pale disc with ill-defined margin and normal macular in the left eye.

She could not identify any of the Ishihara pseudo-isochromatic colour vision plates with both eyes.The contrast sensitivity test with the Pelli Robson chart revealed contrast sensitivity of 20% bilaterally. The CVF 24-2 showed severely depressed fields on pattern deviation graph bilaterally. The baseline E,UR and CR was normal

The two patients had uneventful infusion of intravenous dexamethasone at 3mg/kg/day in 250mls of 5% D/W over 2hours at 40dpm for 3days followed by 11 days of oral prednisolone 1mg/kg/day with tapering off of steroid over 3days.

There was rapid and remarkable improvement in visual parameters in both cases. For Patient A, distance visual acuity improved from 6/9 RE and "counting fingers" at one meter LE to 6/5 bilaterally on the first day post treatment. The near visual acuity improved to N5 bilaterally and he identified 21 plates with the Ishihara pseudo-isochromatic colour vision plates. The contrast sensitivity became normal bilaterally on the first day post infusion.

For Patient B, distance VA improved from "counting fingers" at 3 meter and "counting fingers" at 1 meter right and left eyes respectively to 6/9 and "counting fingers" at 3 meters right and left eyes respectively on the first day post treatment. This finally improved to 6/5 and 6/12 in right and left eyes respectively during follow up. The near vision improved to N5 and N6 in right and left eyes respectively. She was able to identify 21 color vision plates and 2 colour visions plates in the right and left eyes respectively during follow up. The contrast sensitivity became normal in the right eye while there was 60% improvement in the left eye.

Discussion: The current treatment for acute optic neuritis is intravenous methylprednisolone followed by oral prednisolone[3] , however intravenous methylprednisolone is not readily available in our environment, hence the need for an alternative intravenous steroid . Intravenous dexamethasone was used to treat acute optic neuritis in previous studies similar to ours, without any serious side effects[5-8] with the added advantage of easier accessibility and cheaper cost. Omoti *et al*[9] in Benin, Nigeria reported effectiveness of a single dose of sub-Tenon's depo-methylprednisolone acetate 40 mg followed by oral prednisolone 60 mg daily in the management optic neuritis. Though, there could be improvement in visual acuity following an attack of optic neuritis without treatment, the quality of visual improvement would be poor[3,10]

Conclusion: Intravenous dexamethasone can be given to patients with acute optic neuritis as a substitute for methylprednisolone due to its easy availability and lower cost. Treatment of acute optic neuritis with intravenous steroid is safe, effective and feasible in our environment.

References

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