

A study of surgical management of traumatic optic neuropathy

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Abstract

Traumatic optic neuropathy (TON) is one of the devastating complications of head injury. It is noted in 0.5 to 3% of head injuries. Objectives of the study is whether surgical management along with steroid is useful or not. Totally 100 patients were included in this study. In combined modality group, that is steroid followed by surgical decompression, 32 patients were included, showed significant improvement in vision. 'P' value <0.05.

Key Words: steroids, surgical management, traumatic optic neuropathy.

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Received Date: 19/06/2019 Revised Date: 12/07/2019 Accepted Date: 01/08/2019

DOI: <https://doi.org/10.26611/10091129>

Access this article online

Quick Response Code:



Website:

www.medpulse.in

Accessed Date:
11 August 2019

laceration caused by bony fragments. Whereas indirect injury is caused by transmission of shock waves or forces from a distant site to the optic nerve. Indirect injuries are more common than direct injuries in head injury patients. The prognosis of direct injury is very poor.

AIMS AND OBJECTIVES OF THE STUDY

Aims of the study

1. To study optic nerve injury in mild and moderate head injury patients admitted in the head injury ward, Rajiv Gandhi Government General Hospital.
2. To study the role of surgical intervention.

Objectives of the study

Surgical treatment for whom it is useful

MATERIAL AND METHODS

Nature of study: Prospective study

Total cases studied: 100

Place of study: Head injury ward, Institute of Ophthalmology, Rajiv Gandhi Government General Hospital, Chennai.

Time of study: August 2013 to March 2016

Surgical Management

Optic nerve decompression was first described in 1916 through transcranial route and unroofing of the optic canal.

INTRODUCTION

Traumatic optic neuropathy (TON) is one of the devastating complications of head injury. It is noted in 0.5 to 3% of head injuries. According to the studies, the incidence of optic nerve injury in head injury is 1.5%. Exact incidence of TON is difficult to determine, as many unconscious severe and critical head injured patients may die. Majority of optic nerve injuries happened because of acceleration and deceleration injury. The incidence was common among young adult males. RTA is the most frequent cause for TON, followed by falls and assaults. The optic nerve injury is often associated with significant head injury and faciomaxillary injury. Optic nerve injury can be divided into direct or indirect injury. The direct injury results from sharp object trauma, in which damage to the optic nerve occurs due to penetrating injuries, optic nerve avulsion or due to

Inclusion Criteria

1. Patients with mild head injury (GCS-13to14) and those recovering from moderate head injury (GCS-9 to 12).
2. Patients showing clinical evidence of optic nerve injury.

OBSERVATION AND RESULTS

In combined modality group, that is steroid followed by surgical decompression, 32 patients were included, showed significant improvement in vision. ‘P’ value <0.05.

Table 1: Combined modality treatment and visual acuity improvements:

Combined treatment	Improved	Not improved	Total
Done	24	19	43
Not done	31	54	85
Total	55	73	128

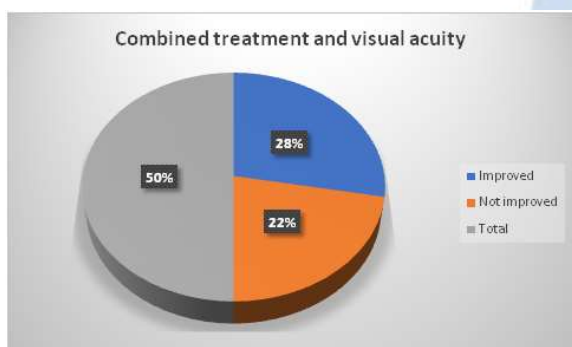


Figure 1: Combined treatment and visual acuity

DISCUSSION

Steroids followed by decompression

1. Patients who were initially treated with steroids who showed minimal improvement and then became static and their imaging showing optic nerve compression by bony fragments.
2. Patients who had delayed visual dysfunction and their imaging showing optic nerve edema, nerve sheath haematoma and optic canal fracture with bony

compression. Based on the above mentioned criteria, 32 patients were included in this combined modality group. All the patients in this group initially received steroids they were reassessed after 48hours. If the patients had slow improvement or static visual acuity or developed delayed deterioration and their imaging showed optic nerve compression by bony fragments, they were taken up for surgery. If patients image showed compression from medial optic canal wall by fractured bony fragments or optic nerve edema, they were taken up for transnasal endoscopic decompression of medial orbital wall and medial optic canal. If patients imaging showed compression from lateral orbital wall or lateral wall of optic canal by bony fragments, they were taken up for lateral orbitotomy and removal of bony fragments. In the post operative period, steroids were continued and tapered later. They were reassessed for clinical visual recovery after 48 hours and 7 days.

CONCLUSION

The combined modality treatment, showed significant improvement in visual acuity.

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Source of Support: None Declared
Conflict of Interest: None Declared