

Review of Ocular Motor Cranial Nerve Palsies in the Neuro-Ophthalmology Subspecialty Clinic, University College Hospital, Ibadan

Ogun O.A., Ajaiyeoba A.I. and Aremu O.O

Department of Ophthalmology, University College Hospital, Ibadan, Nigeria

Corresponding author: Aremu O.O.,

Email: aremuolanipekun@yahoo.com

Introduction: Ocular motor cranial nerve palsies (OMCNP) are a common presentation in neuroophthalmology clinics worldwide¹. Causes include: trauma, microvascular ischemia, nerve compression, inflammation and demyelination². Less frequently, congenital cranial palsies or agenesis also occur. This study was carried out to provide data on the common causes of OMCNP presenting to a neuro-ophthalmic clinic serving an indigenous Nigerian Population and to draw attention to capacity building needs in Neuroophthalmology within the Nigerian context.

Methods: A retrospective review of patients with OMCNP who presented to neuro-ophthalmology clinic UCH, Ibadan between November 2007 and October 2016. Data managed & analyzed using SPSS version 22.

Results: Fifty patients with ocular motor cranial nerve palsies were seen during the period of review. There were 28 males and 22 females (1.3:1).

Table 1: Distribution of cranial nerve palsies

Cranial nerve	Frequency	Percentage (%)
Oculomotor	31	62
Abducens	14	28
Trochlear	3	6
Multiple cranial nerves	2	4
Total	50	100

The most common identifiable risk factor for OMCNP was presumed microvascular ischemia (22%). Trauma 20%, space occupying lesion, SOL (16%), infective causes such meningitis and encephalitis (6%), and pseudotumor cerebri (2%). Aetiology could not be identified in 34% of cases. Fifty-five percent of patients with oculomotor nerve palsies had pupil involvement, with space occupying lesion being the most common risk factor (47%).

Six percent of patients had trochlear nerve palsy with each having different aetiologies ranging from uncontrolled hypertension, head trauma and idiopathic. Abducens nerve (6th) palsy was found in 28% of our patients. Aetiology could not be found in 57.1% of cases. Identifiable risk factors include trauma (14.3%), meningitis (14.3%), pseudotumor (7.1%), and microvascular ischemia (7.1%). Eleven patients had neuroimaging done. Findings were normal in 3 patients, 3 patients had space occupying lesion, 2 had infarcts, 1 with hydrocephalus and 2 with non-specific findings.

Table 2: Treatment outcomes (as at last clinic visit)

Treatment outcomes	Frequency	Percentages (%)
Partial recovery	8	16
Full recovery	8	16
Lost to follow up	31	62
Deceased	3	6

Discussion: CN III palsy was found to be the commonest OMNCP. Similar findings were reported by Berlit et al³. Identifiable risk factors for OMCNP include presumed microvascular ischemia, SOL, trauma. Tiffin et al⁴ also reported similar risk factors in their study of acquired OMCNP. There was more pupil involving CNIII palsy. This can be ascribed to the high percentage SOL among the aetiology of CNIII palsy. CN IV palsy was the least common OMCNP. The cause of CNVI palsy could

not be identified in more than half of cases which is similar to Shakya *et al*⁵ findings.

Conclusion: Ischaemic CN III palsy was the commonest cause of OMCNP. This highlights the importance of screening for systemic risk factors for microvascular disease in patients with OMCNP. Furthermore, the role of neuroimaging in diagnosing the aetiology of OMCNP cannot be overemphasized

References

1. Sitaula S, Sharma AK, Shrestha GB, Gajurel BP, Shrestha GS; clinical manifestation of ocular motor nerve palsies in a tertiary eye hospital, Kathmandu, Nepal; *Journal of Institute of Medicine*, December, 2014, 36:3
2. Rowe F, VIS group UK. Prevalence of ocular motor cranial nerve palsy and association following stroke. *Eye* 2011; 25:881-7
3. Berlitz Peter. "Isolated and combined pareses of cranial nerves III, IV and VI a retrospective study of 412 patients". *Journal of the Neurological Sciences* 103.1 (1991): 10-15
4. Tiffin PA, MacEwen CJ, Craig EA, Clayton G. Acquired palsy of the oculomotor, trochlear and abducens nerves. *Eye* 1996; 10:377-384.
5. Shakya S, Agrawal JP, Ray P. Profile of isolated sixth cranial nerve palsy: a hospital based study. *J Neuroscience* 2004; 1:32-35.
6. Kerty E, Bakke SJ. Neurological imaging of 3rd, 4th and 6th cranial nerves. *Tidssk Nor Laegeforen* 2001; 121:1366-1368.
7. Rucker CW. Paralysis of the third, fourth, and sixth cranial nerves. *Am J Ophthalmol* 1958; 46:787-794
8. Rucker CW. The causes of paralysis of the third, fourth, and sixth cranial nerves. *Am J Ophthalmol* 1966; 61:1293-1298
9. Rush JA, Younger BR. Paralysis of cranial nerves III, IV, and VI: cause and prognosis in 1000 cases. *Arch Ophthalmol* 1981; 99: 76-79
10. Richards BW, Jones FR, Younger BR. Causes and prognosis in 4278 cases of paralysis of the oculomotor, trochlear, and abducens cranial nerves. *Am J Ophthalmol* 1992; 113: 489-496
11. Pedro-Egbe CN, Fiebai B, Awoyesuku EA. A 3-year review of cranial nerve palsies from the University of Port Harcourt Teaching Hospital Eye Clinic, Nigeria. *Middle East Afr J Ophthalmol* 2014; 21: 170-174
12. Mwanza J. Ocular motor nerve palsy: A clinical and etiological study. *Indian J Ophthalmol* 2006; 54: 173-175.
13. Thammanoon Surachatkumtonekul, Pennapa Soontrapa, Suchada Kampanartsanyakorn, Dhaivadee Dulayajinda. 'Causes and Treatment Outcomes of Third, Fourth and Sixth Cranial Nerve Palsy'. *J Med Assoc Thai* 2012; 95 (Suppl. 4): S96-S101