

# Non-Surgical Management of Hyphaema from non penetrating Trauma among Nigerian Ophthalmologists

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**Purpose:** To explore non-surgical treatment preferences and practices of ophthalmologists in Nigeria.

**Material And Methods:** The study was a survey done by means of self-administered semi-structured questionnaire to Nigerian ophthalmologists. Literature search was done using Google, and HINARI

**Results:** In-patient treatment is favored by 72%; bed rest is practiced by 97.2%; while 54.8% routinely pad traumatized eye. Commonest medications used are glucocorticoids by 87.1%; cycloplegics by 80.6%, and oral carbonic anhydrase inhibitors 59.1%. The commonest combinations of drugs used are these three medications, being deployed by 50.5% of surveyed ophthalmologists routinely in all patients with closed globe traumatic hyphaema. Except for CAI no oral medications enjoys significant favor

**Conclusion:** No aspect of treatment enjoys universal agreement. Majority advocates routine use of topical glucocorticoid and cycloplegic agents. Bed rest, hospitalization and padding should not be routine but based on need. These are suggested as approach for management of this condition pending availability of a better guideline.

Trauma to the eye may result in various injuries including presence of blood in the anterior chamber without perforation of the eye. Closed-globe traumatic hyphaema may cause diverse complications including associated traumatic uveitis which generally accompanies the initiating trauma, secondary haemorrhage, corneal blood staining, synechia formation, and ocular hypertension / secondary glaucoma.<sup>1,2</sup> Aim of management is primarily to prevent these sight-threatening complications from occurring, or if that fails, treat them if they arise. Treatment of complications when they arise is fairly straightforward, but preventing them from occurring is a challenge, arising from difficulty in predicting who among patients will develop any of these complications. The result is differences of approach among ophthalmologists and thus to different management practices. These

practices and associated controversies include advantage of ancillary measures like hospitalization, bed rest with restriction of activities versus ambulation and at-home treatment;<sup>3,4</sup> utility of padding the affected eye or both eyes;<sup>5,6</sup> and the place and usefulness of various medications – topical, oral and systemic – in preventing complications.

Numerous studies disclose conflicting results as to benefit derivable from various medications commonly used in traumatic hyphaema<sup>1,6-8</sup> resulting in many ophthalmologists in parts of the world either commonly using and recommending them, while others do not.<sup>3,5,6,9,10</sup> Surveys of ophthalmologists in Texas<sup>11</sup>, USA disclosed absence of agreement in virtually all aspects of management; and in the UK,<sup>12</sup> divergent views on appropriate medications were expressed by ophthalmologists. This study is designed

to disclose views and practices of Nigerian ophthalmologists concerning the various medications they use routinely in uncomplicated closed-globe traumatic hyphaema so as to determine the dominant views among them in this regard. In the absence of a multi-center case-control study it is hoped the results obtained from a broad base of practitioners would act as a guide in the Nigerian and similar environment.

## MATERIAL AND METHODS

A convenience sampling of Nigerian ophthalmologists who attended the afternoon scientific session on the 16th September 2008 of the annual general congress of the ophthalmological society of Nigeria (OSN) at Ile Ibe in by means of a semi-structured pre-tested questionnaire. Responses were analyzed with SPSS 11 software.

## RESULTS

One hundred and seven questionnaires were distributed; 101 were retrieved, but 8 were discarded because filling was substantially incomplete, resulting in 93 used for this analysis.

Respondents were from 42 eye care centers. Of these 93 practitioners, 9 ophthalmologists practice in 4 private eye care facilities and 84 represented 38 public hospitals-tertiary and secondary. Public eye care centers captured in the study is estimated to constitute about 75% of such institutions in Nigeria. Among the practitioners, 92.5% declared that resort to surgery was infrequent in traumatic closed globe hyphaema, and they found non-surgical means usually adequate for preventing and treating of most complications. Results are presented in tables 1-3, and in Fig. 1.

## DISCUSSION

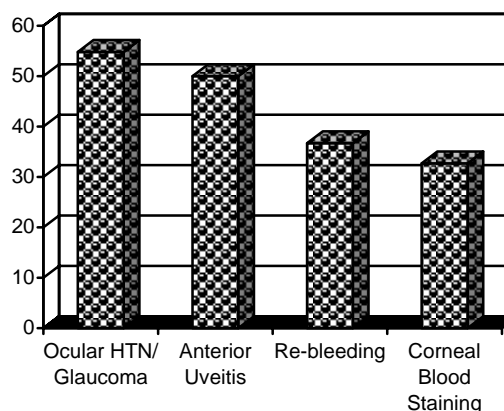
### ANCILLARY MANAGEMENT

Complications of traumatic hyphaema as depicted in figure 1 can result in loss of vision, and treatment is aimed at preventing this complication occurring or reducing their potential for causing loss of vision. The specific causes of traumatic hyphaema in Nigeria as depicted in table 1 do not tend to be more amenable to non-surgical treatment as far as we know.

Part of traditional management of hyphaema patients involved hospital admission and restriction of activities in the form of bed rest. The patient was required to lie in bed with the head and shoulder raised to 30 – 45 degrees and both eyes were covered

with a rigid shield. Medications used included topical cycloplegics and glucocorticoids, oral sedatives and sometimes prednisone tablets 2. These measures were thought to be useful in preventing secondary haemorrhage: activity restriction to reduce stress – induced raised venous pressure, binocular patching to prevent accommodative and pupillary activity that might induce dislodgement of clot blocking the torn vessel and result in secondary haemorrhage. It is apparent from table 2 that Nigerian ophthalmologists in large measure still practice these methods. This is because of its claimed benefits and the pressure of tradition.

The value of head up position is to better estimate level of blood and thus classify the hyphaema, determine if it is decreasing or increasing, facilitate drainage from wider lower trabecular meshwork, and to have a hyphaema level below pupillary level for ease of ophthalmoscopy and faster recovery of vision for visual acuity assessment.<sup>13</sup> This appears more of an empirical treatment since the head-up position is utilized in all grades of hyphaema-those with fluid level below the pupil, and even in the presence of clots. Unfortunately if the inferior angle is the part damaged, the head-up position is valueless, and could in fact be deleterious as the rate of decrease of hyphaema may be compromised.



**Fig. 1:** (Okosa and Onyekwe) Complications observed by Nigerian ophthalmologists on patients with traumatic hyphaema

Although studies with regards to hospitalization, padding and bed rest were found by investigators not to influence complication rate, duration of hyphaema and final visual acuity<sup>3,4,5,6</sup> many ophthalmologists in many institutions still practice and recommend them

to varying degrees. These different approaches are reflected among Nigerian ophthalmologists: 97.8% insist on bed rest with head-up position, although 72% routinely admit all patients with closed-globe hyphaema on initial contact.

Reason for seeming preference for hospitalization is that all patients with hyphaema require daily examination and monitoring of intra-ocular pressure and other complications; and it is not possible to monitor for these with patient at home. Compliance with bed rest and medication in a patient at home cannot be monitored. Patients may find it inconvenient, or sometimes impossible, to come from far distances daily, and at the time required for necessary follow-up, making it seem prudent to admit them.

Padding of affected eye is not as widespread as bed rest or hospital admission as unocular patching is deployed by 54.8%; as against 45.2% who do not pad at all, while 2.5% pad both eyes. Explanation of the seeming preference for eye padding is to shield the injured eye and prevent further trauma and secondary haemorrhage although studies have not demonstrated any differences in complication rate or requirement for surgery between patients who had eye pad and others who do not<sup>5,6</sup>.

**Table 1:** Trauma situations causing hyphaema in Nigeria

Trauma Situations	Number Indicating this as a Common Cause of Hyphaema n (%)
Canning (whipping)	52 (55.9)
Affray / assault	48 (51.6)
Road traffic accident	22 (23.7)
Domestic violence	21 (26)
Others	10 (10.8)

### Topical Medications

A preponderant majority (91.4%) of Nigerian ophthalmologists, as displayed in Table 3, routinely use single or combination of medications as only 8 of the 93 sampled do not use any medication in uncomplicated hyphaema. Cycloplegic and glucocorticoid eye drops the most commonly used combination, are deployed with the expectations that by stabilizing the iris blood vessels, they will control

**Table 2:** Ancillary treatments practiced by ophthalmologists in Nigeria for management of uncomplicated traumatic closed - globe hyphaema

Treatment	Pervasiveness n (%)
Hospitalization	67 (72)
No hospitalization	19 (20.4)
Hospitalization and no hospitalization	7 (7.5)
Padding of traumatized eye	51 (54.8)
No padding	42 (45.2)
Binocular padding	2 (2.2)
Bed rest	91 (97.8)
Unrestricted ambulation	2 (2.2)

**Table 3:** Drugs routinely used by Nigerian ophthalmologists, and their frequency for management of traumatic non-penetrating hyphaema

Glucocorticoid eye drops/ ointment	81 (87.1)
Atropine and other cycloplegics	75 (80.6)
Carbonic anhydrase inhibitors (CAI) tablets	55 (59.1)
Glucocorticoid eye drops + cycloplegic agent + CAI	47 (50.5)
Vitamin C tablets 100 mg tid	10 (10.8)
NSAID eye drops + tablet	3 (3.2)
Sedatives: diazepam 5 mg bid for adults	3 (3.2)
Acetaminophen tablets 500mg -1000mg tid for adults	2 (2.2)
Antibiotic eye drops	2 (2.2)
Pilocarpine eye drop 1%	1 (1.1)
NSAID eye drop	1 (1.1)
Amino-caproic acid	1 (1.1)
No routine medication	8 (8.8)

anterior uveitis resulting from the trauma or presence of blood in the anterior chamber, which inflammation was both a source of discomfort to the patient, and thought to predispose to secondary haemorrhage<sup>14</sup>. Additionally these medications prevented synechia formation in hyphaema of long duration; and pupillary dilatation caused by mydriatics allowed an earlier visual acuity assessment in clearing hyphaema. The plethora of practices no doubt reflects effect of diverse and conflicting reports by investigators in this matter. For example Oksala found topical steroid and cycloplegics reduced re-bleed rate in addition to treating associated anterior uveitis,<sup>14</sup> but a study in Kuwait City did not find any difference in resolution of traumatic hyphaema, the complication rate or requirement for surgery among three groups of patients: those treated with combination of topical cycloplegic agent with corticosteroid; those treated with corticosteroid eye drops only; and those treated with placebo in the form of artificial tears.<sup>6</sup> It is not known what factors are responsible for differing effects of these drugs in these different population groups. Could it be related to diet, habit, blood group, tissue types, and mechanism of injury? Until these questions are answered, it appears the practice among Nigerian ophthalmologists is to err on the side of safety by administering these drugs. It might be argued that cycloplegics by bunching the iris towards the anterior chamber angle may impede rate of drainage and raise the IOP, and by its weakening effect on the iris muscle result in more frequent incidences of re-bleeding; or that miotics would have the opposite effect. However Rakusin found no difference in complication rate and resolution of hyphaema among patients treated with miotics, mydriatics, both or none.<sup>7</sup> Conclusion from these studies is that ancillary and medical treatments have not been conclusively proved to influence the spontaneous resolution of hyphaema, reduce its complication rate or decrease need for surgery. This notwithstanding routine use of topical cycloplegic and glucocorticoid drugs in this condition by a vast majority of Nigerian ophthalmologists is a practice shared by many, but by no means all, of their contemporaries in other places.<sup>1,3,5,8</sup> Reasons for persistence in use of these medications prophylactically include that old practices die hard especially if they are not demonstrably harmful, and could cause some good. Besides it is probably more satisfying for the patient and the doctor to be seen as doing something instead of not 'treating' the patient. Very few ophthalmologists would be able to send a patient

with uncomplicated closed - globe hyphaema home, without padding, no bed rest, and no drug despite reports that these measures are probably not helpful. Perhaps legal and ethical consideration in the present situation of uncertain knowledge concerning possible benefits compel practitioners to offer probably unnecessary treatment in this condition corresponding to the assertions of Romano and Phillips.<sup>10</sup> Why do the few (8.6%) found in current study not give any medications routinely in uncomplicated hyphaema? The reason is probably because it would appear as 'bad science', pointless, and not evidence-based to subject patients to expenses and inconvenience of treatment without demonstrable good as the outcome.

### Oral Medications

Ophthalmologists in the UK were unanimous in agreeing on absence of any place for use of systemic medications in uncomplicated hyphaema<sup>12</sup> except for carbonic anhydrase inhibitors (CAI) which were used by 54% of them for adult patients with an IOP of above 25 mm Hg. This contrasts with situation among Nigerian ophthalmologists in which 73% use at least one oral medication routinely (table 3). Carbonic anhydrase inhibitors, is commonest oral medication, and are used routinely by 59.1% of Nigerian ophthalmologists as a pro-active measure in all patients with hyphaema, to prevent secondary glaucoma, especially in large volume hyphaema. It is not clear why topical pressure lowering agents are not preferably used rather than oral CAI as some of them are quite affordable, available and have less adverse reactions.

Use of NSAIDs however is not popular, being employed by only four ophthalmologists- as tablets by three (3.2%) and as tablet and topically by one (1.1%). The rationale for its use appears to be to prevent clot formation and quicken resolution time of hyphaema. However its efficacy in these has not been demonstrated in any study, to our knowledge, but rather its use in hyphaema has been associated with re-bleeding.<sup>2</sup> In present survey three of the four practitioners (75%) who routinely used NSAIDs as oral medication in uncomplicated hyphaema reported secondary haemorrhage as a frequent complication, one reported a frequent need for surgical evacuation of hyphaema; only 36.7% of those who do not use NSAIDs reported re-bleeding as a frequent complication.

Oral fibrinolytic agents -amino-caproic acid (ACA) and tranexamic acid are in the main not used, probably because of lack of availability, cost and

perhaps contradictory, and adverse effects reported by some investigators, and bias of practitioners against them.<sup>2,5,15,10</sup> Topical ACA is currently not available in Nigeria to the authors' knowledge. Use of oral sedatives, acetaminophen tablets and topical antibiotics are also not as popular as use of oral carbonic anhydrase inhibitors or topical glucocorticoids and atropine as displayed in Table 2.

## CONCLUSION

Differences in both ancillary and medical treatment, found among Nigerian ophthalmologists in management of closed – globe traumatic hyphaema reflect situation among practitioners in other parts of the world because of absence of clear cut protocol for management derived from controlled trials. Difficulty in devising a controlled trial in this condition include problem of adequately matching patients and ethical considerations of study protocols in which no treatment controls are utilized<sup>10</sup>. Many outcome studies of traumatic hyphaema management were noted as flawed due to inadequate protocol and bias<sup>10,16</sup> limiting their utility and validity as guide. The best that can be done is to get data from a wide base of trained observers and practitioners who manage this condition for a closer approximation to a valid guideline. This we have attempted to do in this study resulting in some suggestions and recommendations to act as a guide, although the application in some situations may need modification as is usually advised in management of probably all medical conditions.

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