

Diagnosis and Management of Chronic Open Angle Glaucoma (COAG) in a Palestinian Eye Hospital

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Abstract

➤ Purpose

To assess adherence patterns to the UK National Institute of Health and Clinical Excellence (NICE) guidelines on Primary COAG diagnosis and Management (2017) in glaucoma clinics of a Palestinian Eye Hospital.

➤ Method

The audit was designed on randomly selected 64 primary chronic open-angle glaucoma patients from a glaucoma clinic of the eye hospital-Palestine, who fulfilled the inclusion criteria. Patients were divided into two groups (New and Follow up groups), then 32 patients were randomly selected from each group. Data were collected retrospectively from patients' medical records. The main outcome measures were compliance with six of the main NICE guidelines on glaucoma diagnosis and management (November 2017).

➤ Results

Glaucoma clinics showed poor adherence to guidelines regarding obtaining most of the initial assessment investigations (central corneal thickness 0%, gonioscopy 25%, 44% visual field testing, and optic nerve image 22%), the choice of initial treatment (41%), arranging appropriate monitoring intervals (56%), and whether compliance with treatment was checked (6%). However, full adherence (100%) was seen in obtaining applanation tonometry and disc assessment at the initial assessment.

➤ Conclusion

In general, both patient groups' results show poor adherence to NICE guidelines and generalization of the clinical practice to most patients with restricted tests and plans that have been performed and generalized. No clear or definite local or global guideline is followed in the practice. Therefore, appropriate policy changes and programs to increase awareness of NICE guidelines are recommended to improve the quality of care for glaucoma

patients and a professional performance. Re-audit should be designed after one year of implementing the recommended changes and improvements.

Keywords:- Primary Chronic Open-Angle Glaucoma, Diagnosis, Management, Guidelines, Clinical Audit.

I. INTRODUCTION

A glaucoma is a group of diseases that could affect the retina's optic nerve and ganglion cells, characterized mainly by progressive, silent nature; patients may remain asymptomatic until late.¹ According to WHO, Glaucoma is the leading cause of irreversible blindness worldwide.²

It has been estimated that by 2020; 80 million people will be affected by Glaucoma, and of those 1 million will be bilaterally blind due to Glaucoma.^{3,4}

Primary Chronic Open Angle Glaucoma COAG is the most common type of Glaucoma.⁵ In which disc cupping and other glaucomatous disc changes develop in the absence of other known causes, follows chronic time course, with or without elevated intraocular pressure IOP and with the evidence of open anterior chamber angle.⁶ Currently, more than 3 million people are bilaterally blind due to primary chronic open-angle Glaucoma worldwide. It is estimated that more than 2 million will develop primary chronic open-angle Glaucoma each year.⁷

The UK National Institute of Health and Clinical Excellence (NICE) On November 2017 published its guidance on the diagnosis and management of Primary Chronic Open Angle Glaucoma and Ocular Hypertension, intending to provide the best quality of care for those patients.⁸

We conducted this Audit to measure the current practice within the eye hospital team in diagnosing and managing Primary Chronic Open Angle Glaucoma against the recommendations in NICE guidance.

II. MATERIALS AND METHODS

A retrospective analysis of 64 Primary Chronic Open Angle Glaucoma patients' case notes was carried out as the following: Firstly, we divided the documented cases of primary COAG on Apex Electronic System of the Hospital into two groups; the first was the New Patients group which included all the patients who met the inclusion criteria (see below), and was diagnosed after 1st of January 2018 . The second group was the Follow-Up Patients who met the inclusion criteria and was diagnosed before 1st of January 2018. Secondly, 32 patients were randomly chosen from each group. Using the NICE guidelines (NG81) published in November 2017, we identified six standards for primary COAG, three for each group, and designed a data collection sheet. We then collected data on five occasions from 9 st to 19th of August 2018. Then entered, it into a Microsoft Excel spreadsheet and statistically analyzed it using Microsoft Excel software (2007).

➤ **Inclusion criteria:**

For the New patients' group: Patients, who are 18 years old or more, were diagnosed with primary COAG after the 1st of January, 2018.

For Follow-up patients' group: Patients who are 18 years old or more, with primary COAG, who were diagnosed before 1st of January 2018 and presented for follow-up visit.

➤ **Exclusion criteria:**

Children and young people under 18 years.
 People with secondary glaucoma, e.g. neovascular or uveitic glaucoma.
 People with primary or secondary angle closure glaucoma.

People with primary congenital, infantile, or childhood glaucoma.
 Patients with OHT have no clinical evidence of optic nerve damage or visual field defect.
 People with suspected COAG.

➤ **Standards:**

Standard 1: At diagnosis, patients have:

- Goldmann applanation tonometry
- Central corneal thickness
- Gonioscopy
- Disc assessment
- Visual field assessment

Standard 2: An optic nerve head image is obtained at diagnosis for baseline documentation.

Standard 3: Choice of treatment and drug used follows the NICE algorithm.

Standard 4: At each monitoring visit, patients have Goldmann tonometry.

Standard 5: Patients' planned review intervals are set following the NICE algorithm.

Standard 6: Patients' adherence to treatment is checked at the review appointment.

III. RESULTS

Data from 64 patients were collected (32 new and 32 follow-up groups). The results are summarized in *Table 1* and *Table 2*. There was no significant difference between the mean age of patients in each group; in the new patient group, the mean age was 60.5 ± 13.8 (mean±SD). The follow-up group's mean age was 53.0 ± 14.8 (mean±SD).

Standards	(n=32)
<i>Initial assessment</i>	
Goldmann applanation tonometry	100%
Central corneal thickness	0%
Gonioscopy	25%
Disc assessment	100%
Visual field assessment	44%
Obtain an optic nerve head image diagnosis for baseline documentation	22%
Choice of treatment and drug used follow the NICE algorithm	41%

Table 1:- Adherence to the NICE guidelines in Glaucoma clinics of The Eye Hospital-Palestine (new patient group)

Standards	(n=32)
Perform Goldmann tonometry at every reassessment visit	88%
Planned review intervals in accordance with the NICE algorithm	56%
Patient's adherence to treatment checked	6%

Table 2:- Adherence to the NICE guidelines in Glaucoma clinics of The Eye Hospital-Palestine (Folow-up patients)

The gender distribution was also similar between the two groups; in the new patient group, 50% were male. In the follow-up group, 44% were male. In standard 1 (initial assessment), 100% of patients had Goldmann tonometry and disc assessment, 44% had visual fields, 25% had gonioscopy, and 0% had central corneal thickness assessment. In standard 2 (obtaining optic nerve head image), only 22% of cases had an image. Standard 3 (initial treatment following the NICE algorithm) has adhered to 41%. Standard 4 (monitoring visit assessment), applanation tonometry was performed in 88% of patients at their review visit. Standard 5 (patients monitored according to the NICE algorithm): 56% of patients complied with this standard. When looking into checking compliance (standard 6), compliance checked in no more than 6% of follow-up glaucoma patients.

IV. DISCUSSION

Primary open-angle Glaucoma, the most common type of Glaucoma, is a chronic optic neuropathy often requiring lifelong treatment. Patients play a crucial role in improving outcomes and economic aftermath correlated with disease progression by their compliance, adherence, and persistence with therapy. As long as POAG can lead to irreversible blindness if left untreated, early diagnosis and appropriate management make Glaucoma tractable to therapy, by which the majority of patients with this condition can retain good visual function.^{9,10,11}

The results of this study showed that most of the guidelines have a lower adherence rate and significant difference ($P < 0.01$) in glaucoma clinics in a Palestinian eye hospital, compared with a similar study done in Manchester Royal Eye Hospital. Which to our knowledge, the only identical published study compared adherence with the NICE guidelines on glaucoma management.¹² Both central corneal thickness and gonioscopy were done in 96% of Manchester Royal Eye Hospital patients, but 0% of our patients had the central corneal thickness. Only 25% had gonioscopy ($P < 0.01$). In addition, obtaining disc imaging during the initial visit in 22% of our patients as compared with 94% in the Manchester Royal Eye Hospital study ($P < 0.01$). Unfortunately, there is no dedicated section on the system assessment sheet for gonioscopy, central corneal thickness, or disc imaging.

The Goldmann applanation tonometry and Disc assessment were done in 100% of our patients, similar to the Manchester Royal Eye Hospital study percentages. And this shows the advantages of having a pre-designed assessment sheet on the computerized system of the hospital, which includes tonometry and disc assessment in the Palestinian eye hospital system.

The choice of the initial treatment and drug used to follow the NICE algorithm is no more than 41% compared with 96% in the Manchester Royal Eye Hospital study ($P < 0.01$). This is because the choice of treatment depends on the stage of the disease, which relies on the mean defect value in the visual field test, and only 44% of our patients had visual

field testing at the time of diagnosis.⁸ This affirms the significance of performing visual-field testing (perimetry) when the optic nerve appears abnormal, with attention to glaucomatous visual-field defects.¹⁰

The results from standards 5, which assesses whether patients are followed up at the appropriate time, highlights the importance of following a standardized algorithm to make a correct reassessment interval for glaucoma patients as only 56% of patients were followed up during the appropriate time interval as compared with 92% in the Manchester Royal Eye Hospital study ($P < 0.01$).

NICE has emphasized the importance of checking for compliance with treatment. However, we found that compliance was only checked in 6% of our patients as compared with 88% in the Manchester Royal Eye Hospital study ($P < 0.01$). This further supports the value of a complete pre-designed assessment computerized sheet followed by the guidelines for glaucoma patients.

To our knowledge, this is the first study done in Palestine that has compared adherence with the NICE guidance on glaucoma management, thus allowing us to identify ways to stress the significance of following clear guidelines in diagnosing and managing glaucoma best quality of service to our patients.

V. CONCLUSION

In general, both patient groups' results show poor adherence to NICE guidelines and generalization of the clinical practice to most patients with restricted tests and plans that have been performed and generalized. In addition, there is no clear or definite local or global guideline followed in the practice. Therefore, appropriate policy changes and programs to increase awareness of NICE guidelines are recommended to improve the quality of care for glaucoma patients and professional performance. In addition, a re-audit should be designed after one year of implementing the recommended changes and improvements.

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