

An Assessment of Knowledge and Practice of Goldmann Applanation Tonometer Calibration Error Checks among Ophthalmology Residents in Nigeria

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Introduction: Goldmann applanation tonometer (GAT) is the gold standard for the measurement of intraocular-pressure (IOP).¹ The importance of an accurate value of intraocular pressure in patients' eye care cannot be overemphasized as patient's management decisions are based on the intraocular pressure measurement taken by the Goldman applanation tonometer, thus, it is imperative that the accuracy of this instrument be assessed regularly in clinics. In many ophthalmic

clinics in Nigeria, the GAT is commonly used for measuring patients IOP. In routine clinical practice, error of measurement could arise from a non-calibrated tonometer and thus it becomes necessary to ensure routine calibration of the tonometer.² The aim of the study was to assess the level of knowledge and practice of GAT calibration among ophthalmology residents in Nigeria.

Methods: A cross sectional study was carried out among one hundred and eleven (111) ophthalmology residents in various tertiary institutions in Nigeria over a period of three months. A semi-structured questionnaire was used to assess the level of knowledge and practice of GAT calibration. Data obtained was analyzed using statistical package for social sciences version 20.

Results: A total of one hundred and eleven (111) ophthalmology residents from fifteen (15) tertiary hospitals in five (5) geopolitical zones of the country participated in the study. The majority of

Table 1: Sociodemographic characteristics of participants in the study

Variables	Ophthalmology Residents Total (N= 111) Freq. (%)
Age (years)	
21-30	6(5.4)
31-40	90(81.1)
41-50	12(10.8)
>50	3(2.7)
Gender	
Male	51 (46.0)
Female	60 (54.0)
Geopolitical zones of institutions	
North Central	15(13.5)
North West	33(29.7)
South East	14(12.6)
South South	24(21.6)
South West	25(22.5)
Duration of residency training (years)	
1-2years	24(21.6)
3-4years	44(39.7)
>5years	43(38.7)

the participants were females with a male female ratio of 0.8:1. Majority, 105 (94.6%) were over 30 years and about a third had been in residency training for an average duration of three years. Ninety-four (85%) of the participants did not know about the calibration errors of the GAT. Seventy-nine (71%) did not know how to calibrate the GAT. Ninety-two (83%) who use GAT were not aware that periodic calibration checks should be conducted on the instrument.

Discussion: Intraocular pressure(IOP) control is a well-known risk factor for the development and progression of glaucoma³. Therefore, IOP measurement is a basic examination for treatment and follow-up of patients. GAT still remains the standard for measuring IOP. Our finding is similar to the study done by Kumar and Jivan in the United Kingdom who reported that 85% of residents never checked the GAT for errors². The findings from this study emphasize the need for all eye units to develop protocols regarding calibration checks to ensure accurate measurements of IOP when using GAT.

References

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