

5th International Conference on

Clinical & Experimental Ophthalmology

August 04-06, 2015 Valencia, Spain

Evaluation of calibration errors of Goldmann tonometers in university affiliated hospitals in Riyadh, KSA

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Intraocular Pressure (IOP) is the fluid pressure inside the eye; it is a fundamental parameter in conditions of ocular health. Despite the development of other modes of IOP measurement, the Goldmann tonometer (GT) remains the gold standard in the clinical environment. GT need calibration process periodically. These machines may give false readings if left un-calibrated for long time which may lead to deterioration of ocular health. This study was conducted to estimate the calibration errors of GT in different ophthalmology departments and to clarify the importance of keeping these machines calibrated and maintained. The study aims to raise awareness among health care practitioners. This observational cross sectional study based on estimating the calibration errors in two major hospitals, King Abdulaziz Medical City and King Abdulaziz University Hospital in different ophthalmology clinics and departments using a special device called Calibration Error Weight Bar at three different levels (0, 20 and 60) mmhg and readings were recorded. Calibration errors were classed to ≤ 0.5 , 1 and ≥ 1.5 mmhg; the machines with error readings above 0.5 needs to be calibrated. A total of 30 machines were evaluated in regular clinics, emergency department, wards and screening clinics. A small number of machines used in clinics had error more than 0.5, the other machines in emergency, wards and screening clinics had error less than 0.5. This study suggests GT in the clinics are prone to error, so a more rigorous maintenance program for calibration needs to be considered. We recommend conducting a similar study at tertiary Ophthalmology centers.

Biography

Noor Al Anazi is a 5th year Medical Student (final year) at King Saud University. She graduated from College of Medicine on 7th May 2015. She will start her internship in July 2015. She is a Member in Ophthalmology Interest Group at King Saud University.

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