



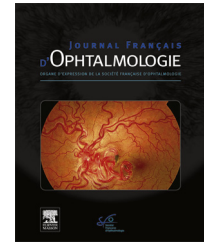
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ORIGINAL ARTICLE

Role of the water-drinking test in medically treated primary open angle glaucoma patients[☆]

Rôle du test de consommation d'eau dans les patients atteints d'un glaucome primaire à angle ouvert médicalement traités

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KEYWORDS

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Primary open angle
glaucoma;
Intraocular pressure;
Medically treated;
Fluctuation;
Combination therapy

Summary

Purpose. – The water-drinking test (WDT) has recently re-emerged as a possible way to determine the competency of the trabecular meshwork. We performed a prospective interventional study to test the hypothesis that the WDT could be useful in assessing fluctuations in patients undergoing treatment for primary open angle glaucoma (POAG).

Methods. – We included 122 patients; 62 on medical treatment for POAG ($n=123$ eyes) and 60 controls ($n=120$ eyes). The study group had been on intraocular pressures (IOP) lowering treatment continuously for at least 3 months with stable IOP. The WDT was performed during fasting and was considered positive if it fluctuated ≥ 6 mmHg.

Results. – The patients on medical treatment had a mean age of 50.56 ± 18.45 years vs. 51.35 ± 11.22 for the controls ($P=0.34$); with 71% being female in the study group and 77% in the control group. In the study group; 52% were on beta blockers ($n=64$), 27% combination of two or more medications ($n=33$), 19% prostaglandin analogues ($n=24$) and 2% alpha agonists ($n=2$). The WDT was positive in 17.07% ($n=21$) in the study group and 2.5% ($n=3$) in the control group ($P=0.0001$). The mean fluctuation was 7.14 ± 2.15 mmHg in the study group and

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6.00 ± 0 mmHg in the controls ($P=0.33$). A positive WDT was found in 33.33% ($n=11$) of those on combination therapy; 12.5% ($n=3$) prostaglandin analogues and 10.94% ($n=7$) beta blockers ($P=0.03$). Combination therapy had the highest positive WDT fluctuation (7.54 ± 2.87) followed by prostaglandin analogues (7.00 ± 1.00) and beta blockers (6.57 ± 0.78) with a P value of 0.44.

Conclusions. – The WDT can identify significant fluctuations in eyes with POAG that are medically treated.

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MOTS CLÉS

Test de surcharge hydrique ;
Glaucome primitif à angle ouvert ;
Pression intraoculaire ;
Fluctuations de la pression intraoculaire ;
Traitement médical ;
Thérapie combinée

Résumé

Objectif. – Le test de surcharge hydrique (TSH) a récemment réapparu comme moyen possible de déterminer la compétence du trabéculum. Nous avons effectué une étude pour tester l'hypothèse selon laquelle le TSH pourrait être utile pour évaluer les fluctuations de la pression intraoculaire chez les patients sous traitement médical pour le glaucome primitif à angle ouvert (GPAO).

Modèle de l'étude. – Étude prospective interventionnelle.

Participants et méthode. – Nous avons inclus 122 patients ; 62 sous traitement médical pour le GPAO ($n=123$ yeux) et 60 témoins ($n=120$ yeux). Le groupe d'étude était avec des médicaments pour réduire la pression intraoculaire pendant au moins trois mois et présentait des pressions intraoculaires stables. Le TSH a été effectué à jeun et se considérait positif lors d'une fluctuation > 6 mmHg.

Résultats. – L'âge moyen des patients sous traitement médical était de $50,56 \pm 18,45$ ans et de $51,35 \pm 11,22$ pour les témoins ($p=0,34$) ; 71 % étaient des femmes dans le groupe d'étude et 77 % dans le groupe témoin. Dans le groupe d'étude, 52 % étaient sous bêtabloquants ($n=64$), 27 % sous thérapie combinée ($n=33$), 19 % sous analogues de prostaglandines ($n=24$) et 2 % sous alpha-agonistes ($n=2$). Le TSH a été positif chez 17,07 % ($n=21$) des yeux dans le groupe d'étude et chez 2,5 % des yeux ($n=3$) dans le groupe témoin ($p=0,0001$). La fluctuation moyenne a été de $7,14 \pm 2,15$ mmHg dans le groupe d'étude et de $6,00 \pm 0$ mmHg chez les témoins ($p=0,33$). Un TSH positif a été observé chez 33,33 % ($n=11$) de ceux qui étaient sous thérapie combinée, 12,5 % ($n=3$) de ceux sous analogues de prostaglandines et 10,94 % ($n=7$) de ceux sous bêtabloquants ($p=0,03$). La thérapie combinée a eu la plus forte fluctuation de la pression intraoculaire selon le TSH ($7,54 \pm 2,87$) suivie de la thérapie avec les analogues de prostaglandines ($7,00 \pm 1,00$) et de celle avec les bêtabloquants ($6,57 \pm 0,78$) avec une valeur de p de 0,44.

Conclusion. – Le TSH nous permet d'identifier des fluctuations importantes de la pression intraoculaire dans les patients atteints de glaucome primitif à angle ouvert sous traitement médical.

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Introduction

Glaucoma progresses when there are changes in an individual's intraocular pressure (IOP). The IOP is the only modifiable risk factor that can impact this disease. Variations, fluctuations and elevations of IOP are considered important risk factors for this disease to progress [1,2]. Measurements during office hours do not necessarily represent the 24-hour variability status. Identifying these changes has been very difficult and different strategies have been employed to determine these variables.

Currently, 24-hour IOP monitoring is the gold standard, but it comes with certain obstacles. It is time consuming and is accompanied by high costs of hospitalization. It is not practical to carry out on a routine basis. There is patient discomfort from being awoken in the middle of the night

for measurements. And finally the test is conducted in an artificial environment distinct from the patient's regular day-to-day routines [3–5].

Some devices that can provide 24-hour monitoring include the Icare® HOME rebound tonometer and the SENSIMED Triggerfish®. The Icare® HOME is a self-monitoring device highly dependent on corneal properties and correct alignment of the device, which can affect the accuracy of readings. Meanwhile, the SENSIMED Triggerfish® is a temporary continuous monitoring contact lens sensor based on changes measured in the cornea-scleral junction. The conversion from the recorded millivolt equivalents to millimeters of mercury has been complex due to the non-linear relationship between the two [6]. Costs of the devices can be an obstacle and limit their widespread use.

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