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Alpha Blockers and Intraoperative Floppy Iris Syndrome (IFIS): Our Experience in Jordanian Royal Medical Services

Belal Abdullah Al-Khawaldeh (MD)[1], Awad Bakheet AL-Kaabneh (MD)[1], Mutaz Nayel Mohammad Al-Sarayreh (MD)[2], Bashar Hussein Theyab Al-Majali (MD)[2], Ahmad Ibraheem Flayyeh Al-Rawashdeh (MD)[2], Anzor Radwan Soud Al-Alwan (MD)[2], Shooq Zeyad Shehadeh Al-Sayeq (MD)[2], Sofian Jibreel Al- Hbahbeh (MD)[1], Ashraf Suleiman AL-Majali (MD)[1*], Ali Mohammed Abu Anzeh (MD)[1], Osama Awad AL-Kaabneh (MD)[3], Mohammad Zaid Suleiman Al-Abbadi (MD)[1], Mohammad Nedal Al-Ajlouni (MD)[4], Ahmad Waleed Saeed Kanana (MD)[1], Saba Mohammad Al-Shorman (MD)[5]

[1]Urologist in Prince Hussein Urology Center (PHUC), Jordanian Royal Medical Services (JRMS), Amman, Jordan
[2]Specialist of Ophthalmology in Department of Ophthalmology, King Hussien Medical Center (KHMH), Jordanian Royal Medical Services (JRMS), Amman, Jordan
[3]Faculty of Medicine, Jordan University, Amman, Jordan
[4]Department of General Surgery in King Hussien Medical Hospital (KHMH) at Royal Medical Services (RMS), Amman, Jordan
[5]Family Medicine Resident, Jordan Ministry of Health (JMH), Amman, Jordan

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***Corresponding author:** Ashraf Suleiman AL-Majali
Urologist in Prince Hussein Urology Center (PHUC), Jordanian Royal Medical Services (JRMS), Amman, Jordan

Abstract **Original Research Article**

***Objectives*:** Benign prostatic hyperplasia (BPH) and cataract formation could affect old men. The usual medical treatment of (BPH) is alpha-adrenergic receptor blockers like tamsulosin. Tamsulosin could complicate the cataract surgery. We intended to evaluate the complications of alpha-blocker drugs especially tamsulosin on cataract surgery in men who were treated by these medications for BPH. ***Methods*:** Retrospectively 2250 male patients > 62 years who underwent cataract surgery in Jordanian royal medical services between 2013 and 2024 were enrolled in this study. We reviewed the following complications occurred within 14 days post cataract surgery: retinal detachment, lost lens or lens fragment, or endophthalmitis. We compared between men with adverse events post cataract surgery (group1) and the others without (group2) regarding the recent exposure to alpha-blockers within 14 days, and no exposure to these medications within (15-365 days) prior to cataract surgery. ***Results*:** The percentage of patients who had adverse events post cataract surgery was (0.67%) (n= 15). While the percentage of men who had not adverse events was (99.33%) (n= 2235). Categorical data showed that 11 patients who had adverse events were treated with tamsulosin within 14 days before the cataract surgery, while one patient who was treated by other alpha-blockers recently (within 14 days) affected, and three patients who had previous exposure to alpha-blockers within (15-365 days) were affected also (P value < 0.05). ***Conclusion*:** Treatment by tamsulosin within 14 days prior to cataract surgery was associated significantly with postoperative adverse events. While recent treatment by other alpha-blockers did not significantly cause serious adverse events.

Keywords: Alpha-Blockers, Tamsulosin, Cataract, Floppy Iris Syndrome.

INTRODUCTION

Benign prostatic hyperplasia (BPH), is a chronic condition that is associated with progressive lower urinary tract symptoms and affects almost 3 of 4 men in the age of 70 years [1]. Benign prostatic hyperplasia is commonly treated with alpha-blockers especially tamsulosin [2]. Alpha-blockers especially tamsulosin mechanism of action is to relax smooth muscle in the prostate and bladder neck through systemic blockade of α (1a) adrenergic receptors and these receptors are present in dilator smooth muscle of the iris which lead to these muscles contraction whereas α (1b) ARs mediate iris arteriolar contraction, so, tamsulosin during cataract surgery could affect mydriasis and lead to intraoperative floppy iris syndrome (IFIS) [3]. Because tamsulosin could be taken by approximately 1% to 5% of male patients at the time of surgery, a sizable proportion of patients may experience IFIS which may increase the risk of complications during cataract surgery [4]. Few studies had assessed the connection between tamsulosin exposure and post cataract surgery complications, also whether proximity of therapy to the surgery is important, or whether complications are equal

or not in other alpha-blockers in comparison to tamsulosin [5].

So, we conducted this study with a large, population-based analysis of post cataract surgery complications in men who experienced treatment of alpha-blockers especially tamsulosin for BPH.

METHODS

Retrospectively 2250 male patients > 62 years who underwent cataract surgery in Jordanian royal medical services between 2013 and 2024 were enrolled in this study.

We reviewed the following complications occurred within 14 days post cataract surgery: retinal detachment, lost lens or lens fragment, or endophthalmitis. We compared between men with adverse events post cataract surgery (group1) and the others without (group2) regarding the following subgroups: recent exposure to tamsulosin or other alpha-blockers within 14 days, and no exposure to these medications within (15-365 days) prior to cataract surgery.

Inclusion Criteria: age > 62 years, and history of alpha-blockers treatment for BPH.

Exclusion Criteria: uncontrolled coagulopathy, and uncontrolled hypertension.

Follow-up period for 14 days post cataract surgery.

Data were expressed as mean ± SD. Statistical analysis was done. A *t* test was used for continuous variables and a chi square test was used for categorical variables by using SPSS v26 program. P values < 0.05 were considered to be statistically significant.

Ethical approval was gained from our ethical approval institution in Jordanian Royal Medical Services.

RESULTS

The percentage of patients who had adverse events post cataract surgery was (0.67%) (n= 15). While the percentage of men who had not adverse events was (99.33%) (n= 2235).

Regarding the demographic data (table 1) no significant differences were seen between both groups. P value was significantly < 0.05.

Table 1: The demographic data

Variables	Group1 (n*=15)	Group2 (n=2235)	P value
Mean age ± SD®\years	65± 3.281	68± 4.362	0.077
DM© (N\%¥)	13\87%	1866\83%	0.056
HTN£ (N\%)	12\80%	1735\78%	0.29
Topical eye treatment within 90 days pre surgery by antibiotics, anti-inflammatory, and antiviral (N\%)	15\100%	2019\90%	0.072

N*: number of the patients. SD®: standard deviation. %¥: percentage of the patients regarding the number of the patients of each group. DM©: diabetes mellitus. HTN£: hypertension.

Categorical data showed that 11 patients who had adverse events were treated with tamsulosin within 14 days before the cataract surgery, while one patient who was treated by other alpha-blockers recently (within 14 days) affected, and three patients who had previous exposure to alpha-blockers within (15-365 days) were affected also (significant P value < 0.05).

Table 2:

Variables	Group1 (n*=15)	Group2 (n=2235)	P value
Recent exposure to tamsulosin (within 14 days pre surgery) (N\%©)	11\73%	57\2.5%	0.0312
Recent exposure to other alpha-blockers (within 14 days pre surgery) (N\%)	1\7%	45\2%	0.00441
Previous exposure to tamsulosin (within 15-365 days pre surgery) (N\%)	3\20%	1131\51%	0.012
Previous exposure to other alpha-blockers (within 15-365 days pre surgery) (N\%)	0\0%	1002\45%	0.009

N*: number of the patients. %©: percentage of the patients regarding the number of the patients of each group.

DISCUSSION

Regarding the demographic data there was no significant differences between both groups, while in relation to the categorical data there were significant difference concerning to recent treatment by tamsulosin within 14 days prior to cataract surgery which led to significant complications (93% of all patients who experienced adverse events post cataract surgery, 73% of patients who had cataract surgery complications with recent exposure to alpha-blockers, and 0.62% of all

patients who did cataract surgery with history of treatment by alpha-blockers).

Some literatures supported the theory that the use of adrenergic antagonists even after they have been discontinued years prior to surgery, can cause IFIS, in contrast of our research [6].

On the other hand, some studies supported our results that serious postoperative ophthalmic adverse events associated with recent exposure to tamsulosin (within 14 days of cataract surgery) without any significant complications due to treatment of other alpha-blockers [7].

Faruquz Zaman and collogues reported that tamsulosin increase the risk of IFIS, but in one hand not all patients given tamsulosin can develop IFIS, and on the other hand post cataract surgery complications could develop in patients without any treatment by tamsulosin prior the surgery [8].

If alpha-blockers can be stopped for 2-4 weeks before cataract surgery, it will minimize the risk of IFIS, and no value for switching to another alpha-blocker. But if patients have severe LUTS and have the risk of re-retention, it is better to involve the ophthalmologist in the decision of continuing treatment by alpha-blockers [9].

Others noticed that the iris remained floppy after 7- to 28-day interruption of the tamsulosin regimen [10], while in our study 14 days is enough to stop tamsulosin prior the cataract surgery according to our results.

However, many literatures found that there is strong association between occurrence of IFIS and the use of selective alpha 1 blockers, and recommended to use non-selective alpha1-adrenergic receptor antagonist, instead of the A subtype selective one [11, 12].

Conclusion

Treatment by tamsulosin (selective alpha-blocker) within 14 days prior to cataract surgery was associated strongly with IFIS which can lead to significant postoperative complications. However, recent treatment by other alpha-blockers and previous treatment by tamsulosin or other alpha-blockers (15-365 days prior cataract surgery) did not significantly cause serious adverse events.

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