Original Article

Comparison of Low Dose Solifenacin and Mirabegron with Solifenacin Dose Escalation in Treatment of Overactive Bladder

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Abstract

Objective: The purpose of this study is to look into the efficacy and tolerability of 5mg monotherapy for OAB. In terms of outcomes and tolerability, the study will also compare the efficacy of solifenacin 10mg versus combinations of solifenacin 5mg/mirabegron 25 mg.

Methodology: This study was a comparative cross sectional study carried out in Ayub Teaching Hospital, Abbottabad, for a period of July, 2022 to October 2022. This was a double phase comparative study, conducted at the Ayub Teaching Hospital, Abbottabad. Female patients of aged ≥18 year with symptoms of OAB more than 3 months were enrolled in this study.

Results: The findings of current study showed that average age of patient was 37 ± 11.41 years. The study's population included 109 (100%) females. The duration of OAB was 5.12 ± 1.12, Number of incontinence episodes within 24 h as 4.78 ± 1.33, number of micturation within 24 h 7.01 ± 1.37, no of urgency episodes as 5.15 ± 0.97 and urgent Incontinence episodes/ 24 hours as 4.18 ± 1.25. After 3 weeks of follow up urgency incontinence episodes/ 24 hours 0.48 ± 0.70, nocturia episodes 0.73 ± 0.68, urgency episodes 1.44 ± 0. 50 and micturation episodes found in patients treated. Adverse events occurred during 3 weeks i.e., dizziness 7 (6.4%), dry mouth 3 (2.8%) and constipation 11 (10.1%). There was a significant difference in outcome nocturia episodes showing p-value 0.042. The study showed significant difference in tolerability and discontinuing treatment.

Conclusion: Mirabegron 25mg (M25 mg) plus solifenacin 5mg (S5 mg) improved OAB symptoms more than solifenacin 10mg (S10 mg), and it was well tolerated in OAB patients who remained incontinent after the initial solifenacin 5mg (S5 mg).

Keywords: Incontinence , Mirabegron, OAB, Solifenacin

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Introduction

In the absence of a urinary tract infection (UTI) or other evident pathology, OAB is a symptom syndrome characterized by urine urgency, frequent nocturia, with or without urgent urinary incontinence.[1] OAB symptoms can be quite irritating, lowering HR-QoL, escalating anxiety and depression, and increasing the need for medical attention.[2] OAB is thought to have multiple causes, despite the fact that the exact cause is unknown. The syndrome is usually associated with detrusor muscular overactivity, that might have neurogenic, myogenic, urotheliogenic, or idiopathic cause.[3]

Beta-3-adrenoceptor agonist mirabegron and antimuscarinic medications are the cornerstones of pharmacological treatment for OAB. Although the efficacy of the two drug classes is comparable, mirabegron has fewer anticholinergic side effects.[4]

Antimuscarinics are frequently started for patients in the clinical practice of OAB pharmacotherapy today. If a patient experiences insufficient symptom control or adverse drug effects while using one antimuscarinic medication, a dose adjustment, moving to another antimuscarinic therapy, or using a beta-3 agonist may be

Authorship Contribution: [1]Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work, [2,3]Drafting the work or revising it critically for important intellectual content, Final approval of the version to be published,

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considered.[5] Uncertainty surrounds the proper order of administration for beta-3 agonists and antimuscarinics.

When compared to solifenacin alone, it has been shown that the combination of solifenacin with mirabegron improves both objective and subjective efficacy outcomes.[6] In addition, a recent study found that solifenacin plus mirabegron improved OAB symptoms more effectively than solifenacin alone in patients with incontinent OAB.[7] M25 were found to be safe and effective across all ages and sexes by the large integrated clinical trial database, particularly in elderly patients who may be at risk for constipation or hypertension.[8] Though mirabegron has been used widely for a long time, nothing is known about how it affects older patients having OAB syndrome who were initially on low-dose mirabegron when switching to an antimuscarinic or add-on antimuscarinic or increasing the dose. This study compared the therapeutic efficacy, adverse effects, and patient preferences of various combinations of solifenacin and mirabegron in elderly OAB patients who had begun M25 therapy.

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Efficacy assessments: The mean number of micturitions per 24 hours, incontinence episodes per 24 hours, urgency episodes per 24 hours, and changes from baseline to EOT were all evaluated in term of efficacy measurements.[9]

Statistical analyses: SPSS version 20 was used to enter and evaluate all of the data. Mean ± S.D was reported for quantitative characteristics as age, mean duration of OAB, no of micturation and no of urgency episodes. Qualitative factors like gender, dry mouth, constipation, dizziness, and tolerability were provided as percentages. Chi square was used to compare outcomes between both groups. P-value of < 0.05 was taken as significant.

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There was a significant difference in outcome nocturia episodes showing p-value 0.042. The study showed significant difference in tolerability and discontinuing treatment. (Table I)

Table I: Comparison of outcomes in 47 patients who still had symptoms of OAB.

Characteristics	Group A (Solifenacin 10mg) (n=27)	Group B (Mirabegron 25mg plus Solifenacin 5mg) (n=20)	P-Value
Urgency incontinence episodes/24 hours	2(7.00%)	1(5%)	0.739
Nocturia episodes	5(19%)	0(0%)	0.042
Urgency episodes/ 24 Hours	2(7%)	1 (5%)	0.739
Micturation episodes/24 hours	3(11%)	2(10%)	0.903
Adverse Events			
Dry Mouth	4(15%)	1(5%)	0.281
Constipation	5 (19%)	2 (10%)	0.417
Dizziness	4 (15%)	1 (5%)	0.281
Hypertension	0 (0%)	2 (10%)	0.093
Tolerability	3 (11%)	16 (80%)	<0.001
Discontinued treatment	20 (74%)	1(5%)	<0.001

Discussion

In order to treat overactive bladder, this study compared low dose solifenacin to mirabegron with solifenacin dose escalation. Combining two orally administered drugs with distinct modes of action and established efficacy may lessen anticholinergic burden without increasing OAB symptoms, thereby avoiding the need for dose escalation or more intrusive procedures. In this OAB population, the once-daily combination of M25 mg and S5 mg was well tolerated and was linked to an improvement in key OAB diagnoses when compared to solifenacin monotherapy.

The S10 mg and S5 mg+M25 mg were more successful than the comparable monotherapies in the largest OAB study to date, with effect sizes that were consistent with an additive effect. By week 3, the majority of the benefits of combined therapy above monotherapy were noticeable and had an additive impact on a number of measures. Responder analyses that evaluated the efficiency of combination drug to monotherapy provided additional evidence for the therapeutic relevance of the improvements reported with combined therapy for a number of objective OAB outcome metrics.[10]

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Oral antimuscarinics have long been used to treat OAB, in addition to the non-life-threatening side effects of dry mouth, constipation, blurred vision, and UTI. A meta-analysis evaluating the safety and efficacy of M50 and S5 monotherapy for OAB over a period of 12 weeks revealed that M50 has a more efficacy comparable to S5 and does not elevate AEs.[10]

In both objective and subjective outcomes, a recent study found that solifenacin plus mirabegron is more effective than a placebo or solifenacin alone.[11] According to additional research, combining mirabegron and solifenacin can reduce OAB symptoms more effectively than either drug used alone, with tolerable side effects.[10]

Conclusion

Results of this study showed that Umbilical artery Doppler is an effective modality in women with Oligohydramnios to rule out adverse maternal and neonatal outcome. This modality can effectively be used to reduce and minimize the burden of adverse obstetric and perinatal outcome.

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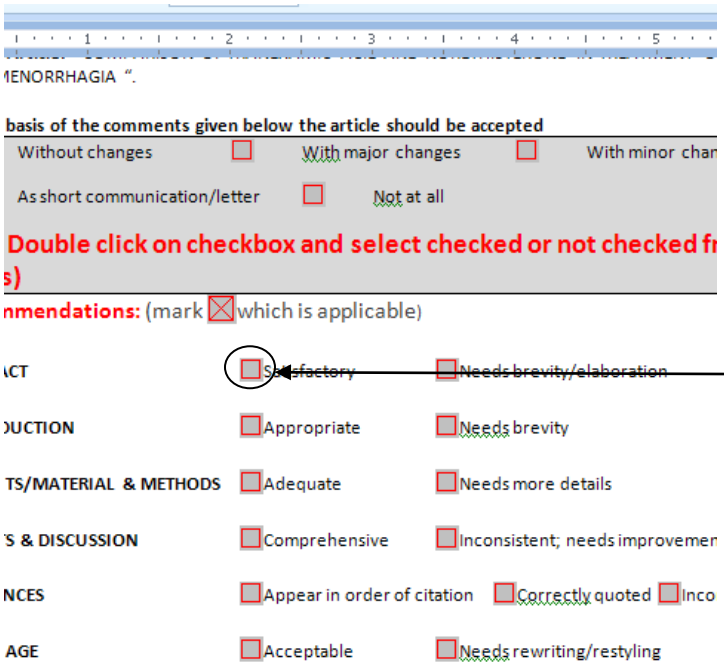

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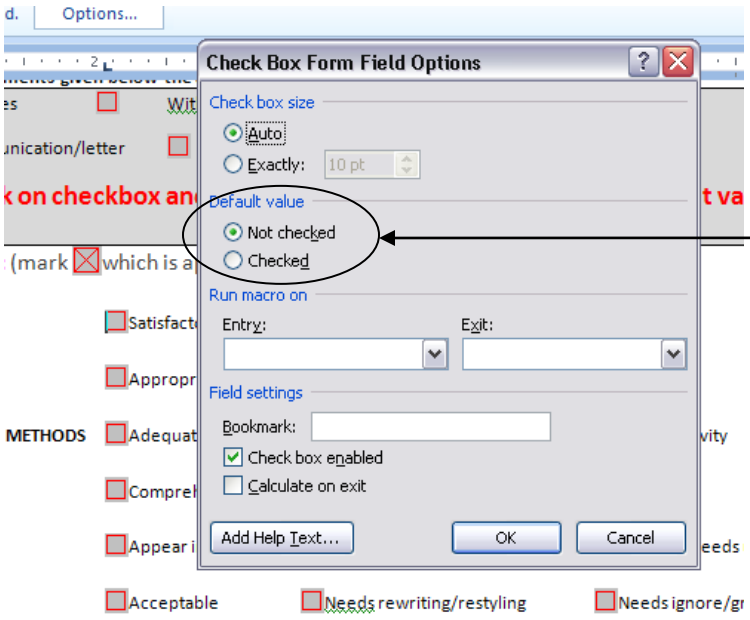

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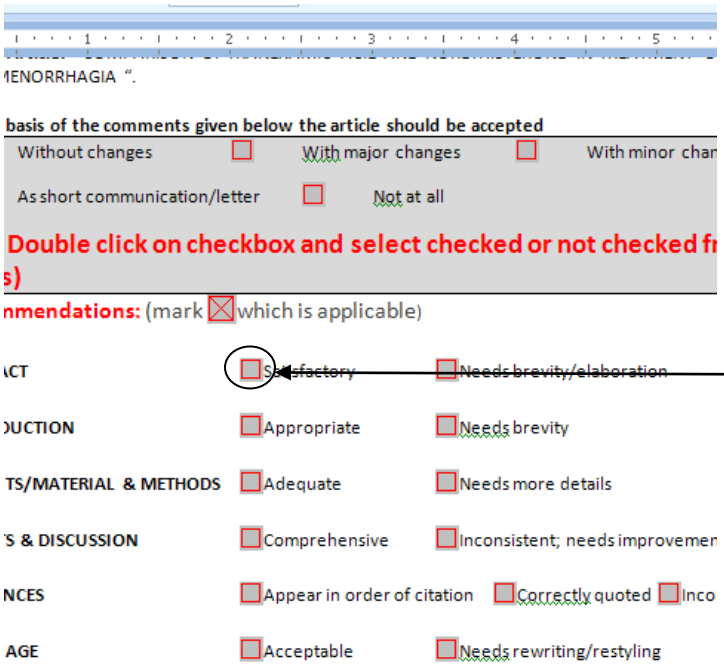

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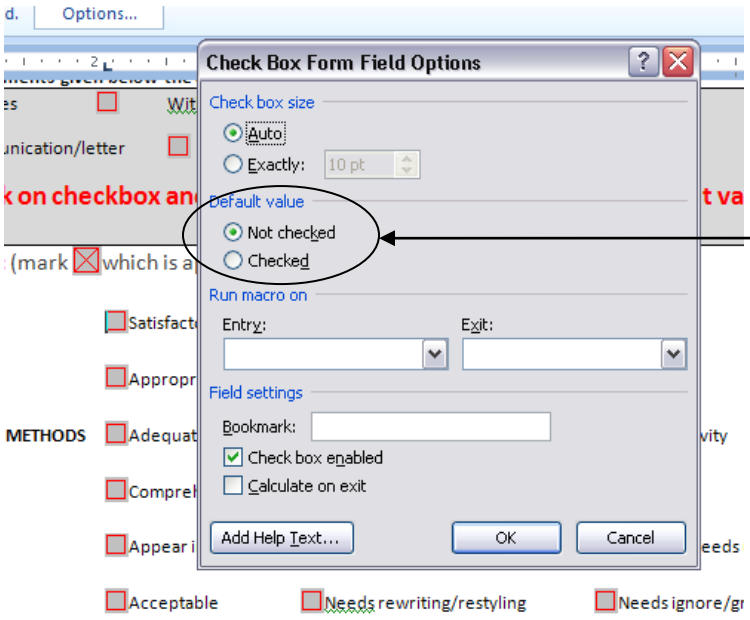

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In order to treat overactive bladder, this study compared low dose solifenacin to mirabegron with solifenacin dose escalation. Combining two orally administered drugs with distinct modes of action and established efficacy may lessen anticholinergic burden without increasing OAB symptoms, thereby avoiding the need for dose escalation or more intrusive procedures. In this OAB population, the once-daily combination of M25 mg and S5 mg was well tolerated and was linked to an improvement in key OAB diagnoses when compared to solifenacin monotherapy.

The S10 mg and S5 mg+M25 mg were more successful than the comparable monotherapies in the largest OAB study to date, with effect sizes that were consistent with an additive effect. By week 3, the majority of the benefits of combined therapy above monotherapy were noticeable and had an additive impact on a number of measures. Responder analyses that evaluated the efficiency of combination drug to monotherapy provided additional evidence for the therapeutic relevance of the improvements reported with combined therapy for a number of objective OAB outcome metrics.[10]

The findings of current study showed that average age of patient was 37 ± 11.41 years. The study's population included 109 (100%) females. The duration of OAB was 5.12 ± 1.12, No. of incontinence episodes within 24 h as 4.78 ± 1.33, number of micturation within 24 h 7.01 ± 1.37, no of urgency episodes as 5.15 ± 0.97 and urgent Incontinence episodes/ 24 hours as 4.18 ± 1.25.

After 3 weeks of follow up urgency incontinence episodes/ 24 hours 0.48 ± 0.70, nocturia episodes 0.73 ± 0.68, urgency episodes 1.44 ± 0. 50 and micturation episodes found in patients treated. Adverse events occurred during 3 weeks i.e., dizziness 7 (6.4%), dry mouth 3 (2.8%) and constipation 11 (10.1%). There was a significant difference in outcome nocturia episodes showing p-value 0.042. The study showed significant difference in tolerability and discontinuing treatment.

Oral antimuscarinics have long been used to treat OAB, in addition to the non-life-threatening side effects of dry mouth, constipation, blurred vision, and UTI. A meta-analysis evaluating the safety and efficacy of M50 and S5 monotherapy for OAB over a period of 12 weeks revealed that M50 has a more efficacy comparable to S5 and does not elevate AEs.[10]

In both objective and subjective outcomes, a recent study found that solifenacin plus mirabegron is more effective than a placebo or solifenacin alone.[11] According to additional research, combining mirabegron and solifenacin can reduce OAB symptoms more effectively than either drug used alone, with tolerable side effects.[10]

Conclusion

Results of this study showed that Umbilical artery Doppler is an effective modality in women with Oligohydramnios to rule out adverse maternal and neonatal outcome. This modality can effectively be used to reduce and minimize the burden of adverse obstetric and perinatal outcome.

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