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Mirabegron a novel approach in the management of overactive bladder

Harshith N*, Daniel Joseph, Kanakavalli K Kundury, Sujay Mugaloremutt Jayadeva

Department of Health System Management Studies, JSS Academy of Higher Education and Research, Sri Shivarathreeshwara Nagara, Mysuru - 570 015, Karnataka, India

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ABSTRACT

Many prescriptions are available for the therapy of the overactive bladder, yet assessing and choosing the correct medication is essential. The study was carried to examine whether Mirabegron could be the drug that can be used effectively in treating overactive bladder. To assess the effectiveness of Mirabegron, the field survey for this project was conducted through a structured questionnaire form the doctors in Bengaluru for about two months with the Support of Micro Labs Pvt. Ltd by involving 44 leading Doctors in the City from February-March 2020. The Survey population was chosen based on convenient random sampling. The analysis was done based on the occurrence of overactive bladder observed in their clinical practice every month, the age group, and the gender, who are being affected. It evaluated Mirabegron as a treatment option for incontinence episode and micturition frequency. Results showed noteworthy improvement in the quantity of incontinence episode and the quantity of micturition recurrence by utilising Mirabegron. The study outcomes indicated that Mirabegron promising effect in the management of overactive bladder.

*Corresponding Author

Name: Harshith N
Phone: 8618423152
Email: harshith.dhsms@jssuni.edu.in

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INTRODUCTION

Globally, Overactive bladder is one of the most common Urologic diseases seen in both genders (Cerruto *et al.*, 2012). In India, more than 10 lakh cases are reported per year. According to international consultation on incontinence research society (ICI-RS), it is described by urinary urgency, with or without urinary incontinence as a rule with an expanded day time recurrence and nocturia (Jiang *et al.*, 2020). Urology otherwise called genitourinary surgery, is the branch of medicine that centres on surgical and medical diseases of the male and female urinary-tract system. Diseases associated with urology include benign prostate hyperplasia, overactive bladder (OAB), urinary stones, urinary tract infection, prostate cancer (Yamada *et al.*, 2018) overactive bladder causes unexpected automatic withdrawal of the substantial mass of the bladder causing urinary desperation, a quick relentless need to urinate. Side effects of overactive bladder incorporate A critical and uncontrollable need to urinate, frequent automatic loss of urine, nocturia, urinate frequently (Deeks, 2018). The risk factors of overactive bladder include age, enlarged prostate, diabetes, brain and spinal cord injuries and obesity (Kelleher *et al.*, 2018). The typical treatment in this condition is antimuscarinic drugs such as solifenacin, tolterodine, oxybutynin, darifenacin (Alexandre *et al.*, 2016). But antimuscarinics are not always effective in controlling overactive bladder symptoms and rarely cure these defects; moreover, they have adverse effects, including dry mouth, nausea, and constipation, in this condition a novel drug is introduced in the management of overactive blad-

der (Angulo *et al.*, 2013). Mirabegron is a powerful beta3-adrenoreceptor agonist drug used in the therapy of overactive bladder, and this category of drug is launched into the Indian market recently (Chapple *et al.*, 2017). Also, this novel medicine has shown a promising effect on the management of overactive bladder (Chapple *et al.*, 2014). Mirabegron is a powerful and specific agonist for beta-3 adrenergic receptors. When beta-3 receptors are enacted, the detrusor smooth muscle unwinds to take into account a bigger bladder limit (Igawa *et al.*, 1999).

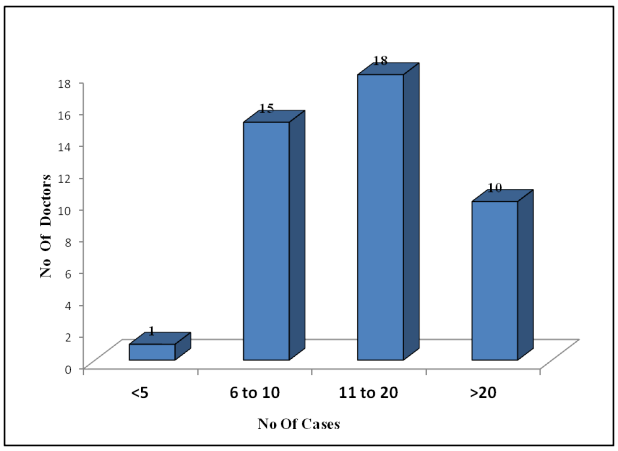

Figure 1: Graphical representation of Average Number cases in one month.

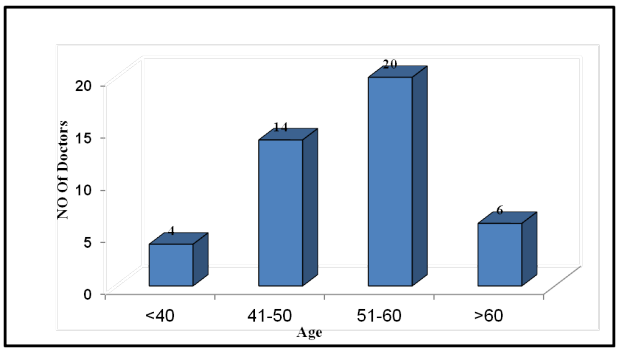

Figure 2: Graphical representation of age group commonly diagnosed with Overactive bladder

MATERIALS AND METHODS

Research Design

The research was carried on doctors in Bengaluru city.

Data Collection

The study is based on both primary and secondary data.

Primary data

Primary data has been gathered through a structured questionnaire and personal interviews with the doctors (Benner *et al.*, 2010).

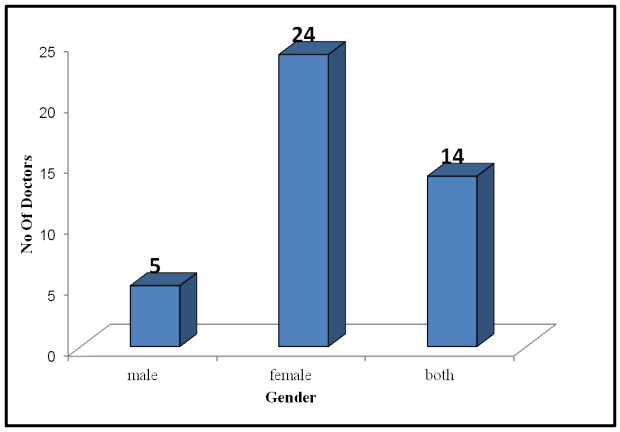

Figure 3: Graphical representation of gender, which commonly diagnosed with Overactive bladder

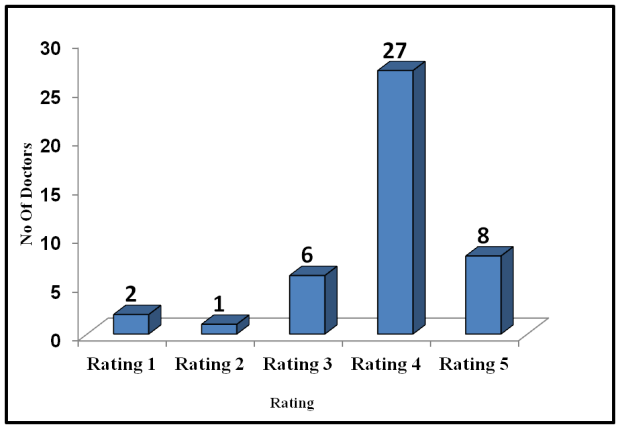

Figure 4: Graphical representation of the effectiveness of Mirabegron in Overactive bladder therapy

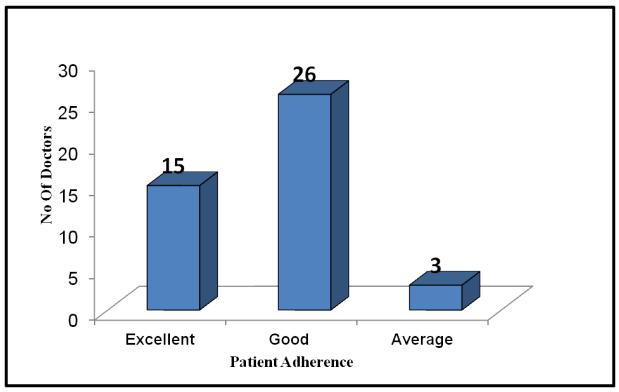

Figure 5: Graphical representation of patient adherence to Mirabegron therapy

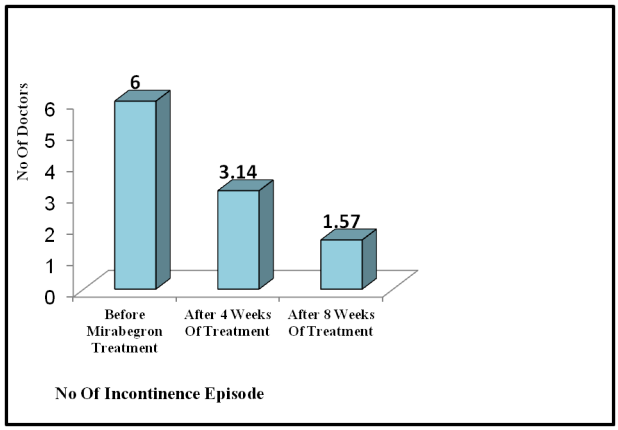

Figure 6: Graphical representation of Treatment of Incontinence Episode with Mirabegron

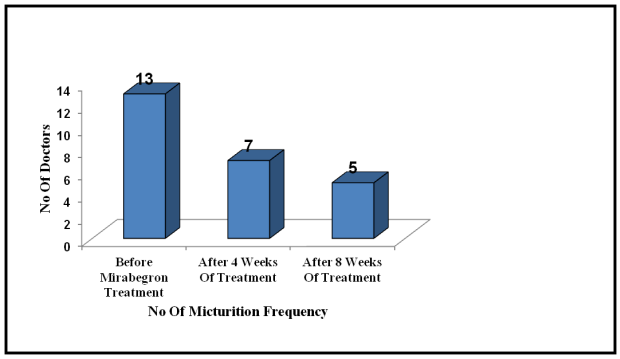

Figure 7: Graphical representation of Treatment of Micturition Frequency with Mirabegron

Secondary data

Secondary data has been gathered from journals, literature, company websites, and the company's internal department.

Sampling Design

Sample size

Forty-four doctors from various localities in Bengaluru.

Sampling technique

In this study, the respondents were chosen through convenience random sampling.

Sampling tool

The Questionnaire was utilised as the primary tool for the assortment of information since it gives helpful feedback from the respondents.

Study Area

The study was conducted at the urology division under the marketing department of Micro labs Pvt Limited.

Study Duration

The study was done for a period of two months, from February- March 2020.

Methodology

Survey questionnaires were prepared based on the molecule.

Conducted interview with Doctors.

Feedback was collected using the questionnaires.

RESULTS AND DISCUSSION

The Figure 1 depicts the number of cases diagnosed with an overactive bladder on an average in a month. In this study, the feedback of 44 doctors was collected by using predetermined questionnaires that were compiled to perform further analysis. Out of 44 doctors, 18 doctors have diagnosed 11 to 20 cases, 6 to 10 cases were diagnosed by 15 doctors, and 10 doctors examined more than 20 cases during their clinical practice.

Figure 2 depicts the age group, which is commonly diagnosed with overactive bladder. In this study, the feedback of 44 doctors was collected by using predetermined questionnaires that were assembled to interpret the data. Out of 44 doctors, 20 stated that overactive bladder is most common in 51-60 age group, whereas 14 doctors observed it in the age group of 41-50

Figure 3 depicts the gender which is mostly diagnosed with overactive bladder. In this study, the feedback of 44 doctors was collected by using predetermined questionnaires that were compiled to analyse the data. Out of it, 24 doctors stated that females are more prone to overactive bladder. Meanwhile, 14 doctors came up with an opinion that both genders are equally affected by an overactive bladder.

Figure 4 depicts the rating given by doctors to Mirabegron based on its effectiveness. In this study, the feedback of 44 doctors was collected by using predetermined questionnaires which were arranged for further interpretation, and we noticed that 27 doctors gave a 4-star rating for Mirabegron therapy and eight doctors marked 5-star rating for Mirabegron therapy.

Figure 5 depicts patient adherence to Mirabegron therapy. In this study, the feedback of 44 doctors was collected by using predetermined questionnaires that were compiled to perform further analysis. Out of 44 doctors, 59% of doctors found that the patients have good adherence to Mirabegron therapy. Meanwhile, 34% of doctors observed excellent

adherence to Mirabegron therapy.

Figure 6 depicts that In this study, the feedback of 44 doctors was collected by using predetermined questionnaires that were compiled to perform further analysis. According to them, Mirabegron has a significant role in the treatment of overactive bladder because it displays a great impact on the reduction of the number of incontinence period in overactive bladder patients.

Figure 7 depicts that In this study, the feedback of 44 doctors was collected by using predetermined questionnaires that were compiled to perform further analysis. According to them, Mirabegron has a significant role in the treatment of overactive bladder because it shows an extraordinary effect on the decrease of the quantity of Micturition frequency.

CONCLUSIONS

The study carried out on analysing the effectiveness of the drug Mirabegron for the therapy of Overactive bladder majority of the doctors believed that patients have good adherence to Mirabegron and also the drug Mirabegron showed promising results in a decrease in the number of incontinence period and Micturition frequency in patients. To sum up, it was found that Mirabegron has a significant effect on the management of Overactive Bladder.

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Conflict of Interest

The authors declare that they have no conflict of interest for this study.

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REFERENCES

Alexandre, E. C., Kiguti, L. R., Calmasini, F. B., Silva, F. H., da Silva, K. P., Ferreira, R., Ribeiro, C. A., Mónica, F. Z., Pupo, A. S., Antunes, E. 2016. Mirabegron relaxes urethral smooth muscle by a dual mechanism involving β3-adrenoceptor activation and α1-adrenoceptor blockade. *British Journal of Pharmacology*, 173(3):415–428.

Angulo, J. C., Khullar, V., Nitti, V. W., Siddiqui, E. 2013. Evidence available on the use of the selective β3-adrenoceptor agonist mirabegron for the treatment of overactive bladder. *Actas Urológicas Españolas (English Edition)*, 37(10):640–651.

Benner, J. S., Nichol, M. B., Rovner, E. S., Jumadilova, Z., Alvir, J., Hussein, M., Fanning, K., Trocio, J. N., Brubaker, L. 2010. Patient-reported reasons for discontinuing overactive bladder medication. *BJU International*, 105(9):1276–1282.

Cerruto, M. A., Asimakopoulos, A. D., Artibani, W., Popolo, G. D., Martina, M. L., Carone, R., Finazzi-Agrò, E. 2012. Insight into New Potential Targets for the Treatment of Overactive Bladder and Detrusor Overactivity. *Urologia Internationalis*, 89(1):1–8.

Chapple, C. R., Cardozo, L., Nitti, V. W., Siddiqui, E., Michel, M. C. 2014. Mirabegron in overactive bladder: A review of efficacy, safety, and tolerability. *Neurourology and Urodynamics*, 33(1):17–30.

Chapple, C. R., Nazir, J., Hakimi, Z., Bowditch, S., Fatoye, F., Guelfucci, F., Khemiri, A., Siddiqui, E., Wagg, A. 2017. Persistence and Adherence with Mirabegron versus Antimuscarinic Agents in Patients with Overactive Bladder: A Retrospective Observational Study in UK Clinical Practice. *European Urology*, 72(3):389–399.

Deeks, E. D. 2018. Mirabegron: A Review in Overactive Bladder Syndrome. *Drugs*, 78(8):833–844.

Igawa, Y., Yamazaki, Y., Takeda, H., Hayakawa, K., Akahane, M., Ajisawa, Y., Yoneyama, T., Nishizawa, O., Andersson, K.-E. 1999. Functional and molecular biological evidence for a possibleβ3-adrenoceptor in the human detrusor muscle. *British Journal of Pharmacology*, 126(3):819–825.

Jiang, Y. H., Chen, S. F., Kuo, H. C. 2020. Role of video urodynamic study in precision diagnosis and treatment for lower urinary tract dysfunction. *Tzu Chi Medical Journal*, 32(2):121.

Kelleher, C., Hakimi, Z., Zur, R., Siddiqui, E., Maman, K., Aballéa, S., Nazir, J., Chapple, C. 2018. Efficacy and Tolerability of Mirabegron Compared with Antimuscarinic Monotherapy or Combination Therapies for Overactive Bladder: A Systematic Review and Network Meta-analysis. *European Urology*, 74(3):324–333.

Yamada, S., Ito, Y., Nishijima, S., Kadekawa, K., Sugaya, K. 2018. Basic and clinical aspects of antimuscarinic agents used to treat overactive bladder. *Pharmacology and Therapeutics*, 189:130–148.