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**Dissertations-Kurzfassung**

**Evaluating the Efficacy and Tolerability of Mirabegron, a  $\beta_3$ -Adrenoceptor Agonist, for the Treatment of Overactive Bladder: Systematic Review and Network Meta-Analysis**

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Overactive bladder (OAB) is a common condition affecting approximately 11% of men and women worldwide. One of the newest treatment options for symptoms of OAB is mirabegron, a  $\beta_3$  sympathomimetic that mediates detrusor relaxation. The objective of this network meta-analysis is to evaluate the extent of the efficacy and tolerability of mirabegron at varying dosages compared to both placebo and first-line anticholinergic pharmacotherapies.

Articles were identified through the MEDLINE, EMBASE, and Cochrane databases using the search term "mirabegron." All original, prospective, randomized, controlled, double blind clinical trials (RCTs) studying mirabegron in adult subjects receiving initial treatment for symptoms of OAB were included. Efficacy was assessed based on six outcome variables and responder data. Tolerability was evaluated for 18 reported adverse events.

Fourteen studies including a total of 15,203 individuals were included in the analysis. Mirabegron demonstrated significantly better efficacy compared to both placebo and tolterodine ER 4 mg for various measures of symptomatic improvement, and patients receiving mirabegron at higher dosages demonstrated greater symptomatic relief. Compared to placebo, the incidence of tachycardia and nasopharyngitis was greater in mirabegron 50 mg treatment groups, and the incidence of cardiac arrhythmia was greater in 100 mg treatment groups. Mirabegron 50 mg groups also demonstrated a higher incidence of hypertension compared to solifenacin 10 mg, whereas cardiac arrhythmia in 100 mg groups occurred less frequently compared to tolterodine ER 4 mg. The incidence of dry mouth was more frequent in all antimuscarinic treatment groups.

With a total of 15,203 patients included in 14 RCTs, the current study highlights new clinically relevant information, particularly concerning the efficacy and tolerability of mirabegron compared to tolterodine and cardiovascular treatment related adverse events. This information may affect patient-centered strategies for the management of OAB, with a particular concern for cardiovascular safety.