

## **Sex-specific frequency of beta-blocker related hospitalization to internal and emergency departments**

**Petra A. Thuermann**<sup>1</sup> Sara Haack<sup>1</sup> Ulrike Werner<sup>1</sup> Jacek Szymanski<sup>1</sup>  
<sup>1</sup> Bernd Drewelow<sup>2</sup> Marion Hippus<sup>3</sup> Werner Siegmund<sup>4</sup> Joerg Hasford<sup>5</sup>

<sup>1</sup> HELIOS Klinikum Wuppertal, University Witten/Herdecke, Germany

<sup>2</sup>University of Rostock, Rostock, Germany

<sup>3</sup>University of Jena, Jena, Germany

<sup>4</sup>University of Greifswald, Greifswald, Germany

<sup>5</sup>University of Munich, Munich, Germany

The lack of solid data from studies often restricts evidence-based pharmacotherapy in women. So, this sub-analysis was carried out to estimate gender-specific incidence rates of betablocker related hospitalizations from a longitudinal population-based study with prospective event assessment (Schneeweiss et al, Eur J Clin Pharmacol 2002; 58:285-291). Since cytochrome P450 2D6 is expressed to a smaller extent in women than in men giving rise to higher plasma concentrations of CYP2D6-substrates, we wanted to evaluate, whether women suffer more frequently than men from ADRs associated with betablockers metabolized by CYP2D6. Data were collected from all patients admitted for adverse drug reactions (ADRs) in all internal medicine and emergency departments in the urban regions of Jena, Weimar, Greifswald and Rostock, Germany between January 2000 and December 2002. All ADRs were evaluated and documented in a standardized manner according to Good Pharmacovigilance Practice. Exactly 129 cases from the 1720 registered likely or very likely drug related hospitalisations were caused by beta-blockers. 79 of these drug related adverse effect were detected in women and 50 in men. The incidence rates of CYP2D6 substrates: metoprolol, carvedilol, nebivolol and propranolol- related hospitalizations were significantly higher ( $p < 0.05$ ) in women than in men (46 vs. 18 ADRs). In contrast the incidence rates of sotalol (14;15) and bisoprolol (12;12) were similar. This phenomenon could be explained by the lower CYP2D6 metabolic capacity in women.