

Non-cardiac depolarization-blocking drugs are associated with increased risk of out-of-hospital cardiac arrest in the community

Talip E. Eroglu¹, Marieke Blom², Patrick Souverein³, Anthonius de Boer⁴, and Hanno Tan⁵

¹Amsterdam UMC Location AMC

²Academic Medical Center

³Utrecht Institute for Pharmaceutical Sciences, Utrecht University

⁴Utrecht University

⁵Affiliation not available

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Abstract

Aim Depolarization-blocking drugs (DB-drugs) used for cardiac disease increase the risk of cardiac arrhythmia (ventricular tachycardia/ventricular fibrillation[VT/VF]) and out-of-hospital cardiac arrest (OHCA) in specific patient groups. However, it is unknown whether drugs for non-cardiac disease that block cardiac depolarization as off-target effect increase the risk of OHCA on a population level. Therefore, we aimed to investigate OHCA-risk of non-cardiac DB-drugs in the community. **Methods** We conducted a population-based case-control study. We included OHCA-cases from an Emergency Medical Services attended OHCA-registry in the Netherlands (ARREST:2009-2018), and age/sex/OHCA-date matched non-OHCA-controls. We calculated adjusted odds ratios (ORadj) of use of non-cardiac DB-drugs for OHCA, using conditional logistic regression. Stratified analyses were performed according to first-registered rhythm (VT/VF or non-VT/VF), sex and age ([?]50, 50-70, or [?]70 years). **Results** We included 5,473 OHCA-cases of whom 427 (7.8%) used non-cardiac DB-drugs, and 21,866 non-OHCA-controls of whom 835 (3.8%) used non-cardiac DB-drugs, and found that non-cardiac DB-drug use was associated with increased OHCA-risk when compared to no-use (ORadj1.6[95%-CI:1.4-1.9]). Stratification by first-recorded rhythm revealed that this applied to OHCA with non-VT/VF (asystole) (ORadj2.5[95%-CI:2.1-3.0]), but not with VT/VF (ORadj1.0[95%-CI:0.8-1.2];P-value interaction<0.001). The risk was higher in women (ORadj 1.8[95%-CI:1.5-2.2] than in men (ORadj1.5[95%-CI:1.2-1.8];P-value interaction=0.030) and at younger age (ORadj[?]70yrs1.4[95%-CI:1.2-1.7];ORadj50-70yrs1.7[95%-CI:1.4-2.1];ORadj[?]50yrs3.2[95%-CI:2.1-5.0];P-value interaction<0.001). **Conclusions** Use of non-cardiac DB-drugs is associated with increased OHCA-risk in the general population. This increased risk occurred in patients in whom non-VT/VF was the first-registered rhythm, and it occurred in both sexes, but more prominently among women, and more strongly in younger patients ([?]50 years).

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