

Ausgewählte pharmakogenetische Studien in verschiedenen Anwendungsbereichen

Pharmakogenetik in diversen Indikationen

- Swen Jesse J et al., The Lancet 2023 Feb 401;347-56,
A 12-gene pharmacogenetic panel to prevent adverse drug reactions: an open-label, multicentre, controlled, clusterrandomised crossover implementation study (6.944 patients)
 - ▷ “Pharmacogenetics-guided prescribing results in a **30% reduction** of clinically relevant adverse drug reactions.”

Pharmakogenetik in der Psychiatrie

- Skokou Maria et al., The Lancet 2024; 101: 105009
Clinical implementation of preemptive pharmacogenomics in psychiatry (1.076 patients)
 - ▷ “PGx-guided arm present with **34.1% less adverse drug reactions** compared to control arm, **41.2% less hospitalisations** and 40.5% less re-admissions, less duration of initial hospitalisations and duration of hospitalisation upon readmission.”
- Vos F. Cornelis et al, JAMA Network Open, 2023; 6(5): 12443
Effectiveness of Genotype-Specific Tricyclic Antidepressant Dosing in Patients With Major Depressive Disorder – A Randomized Clinical Trial (111 patients)
 - ▷ “In this randomized clinical trial, pharmacogenetics-informed treatment resulted in **faster attainment of therapeutic TCA concentrations**, with potentially **fewer and less severe adverse effects**.”
- Bousman CA, Arandjelovic K, Mancuso SG, Eyre HA, Dunlop BW., Pharmacogenomics. 2019;20(1):37–47
Pharmacogenetic tests and depressive symptom remission: a meta-analysis of randomized controlled trials (1.737 patients)
 - ▷ “Pharmacogenetic-guided therapy **1.71 times more likely to achieve symptoms remission** relative to individuals who received usual treatment.”
- Altar CA et al., Mol Neuropsychiatry 2015;1:145–155
Clinical Utility of Combinatorial Pharmacogenomics-Guided Antidepressant Therapy: Evidence from Three Clinical Studies (258 patients)
 - ▷ “Gene-guided treatment raised the **odds of clinical response by 2.3-fold**, the guided group had a 53% greater improvement in depressive symptoms.”

Pharmakogenetik in der Kardiologie

- Claassens DMF et al., New Engl J Med 2019, 381;17
A Genotype-Guided Strategy for Oral P2Y12 Inhibitors in Primary PCI (2.488 patients)
 - ▷ “CYP2C19 genotype–guided strategy for selection of Clopidogrel therapy was noninferior to standard treatment with ticagrelor or prasugrel at 12 months with respect to thrombotic events and resulted in a **lower incidence of bleeding.**”

Pharmakogenetik in der Onkologie

- He W et al, Ann. Oncol. 2021 Oct;32(10):1286-1293
CYP2D6 genotype predicts tamoxifen discontinuation and drug response: a secondary analysis of the KARISMA trial (1440 patients)
 - ▷ “**Poor CYP2D6** metabolizers are likely to experience an **impaired response to tamoxifen**, measured through mammographic density reduction. In contrast, **ultrarapid CYP2D6** metabolizers are at risk for exaggerated response with **pronounced adverse effects** that may lead to treatment discontinuation.”
- Deenen MJ, et al., J Clin Oncol. 2016; 34(3):227–34.
Upfront Genotyping of DPYD*2A to Individualize Fluoropyrimidine Therapy: A Safety and Cost Analysis (2.038 patients)
 - ▷ “The risk of 5-FU-induced toxicity was significantly **reduced from 73%** in historical controls (n =48) **to 28% by genotype-guided dosing** (P < .001); drug-induced death was reduced from 10% to 0%.”

Pharmakogenetik in der Schmerzbehandlung

- Smith DM, et al., Genet Med. 2019;21(8):1842
CYP2D6-guided opioid therapy improves pain control in CYP2D6 intermediate and poor metabolizers: a pragmatic clinical trial (375 patients)
 - ▷ “Within the same subgroup of IM/PMs prescribed **tramadol or codeine** at baseline, CYP2D6-guided group experienced a **30% reduction in composite pain intensity** compared with the usual care group.”

Pharmakogenetik in der Polypharmazie

- Hayashi M et al., es Social Adm Pharm 2021 Aug 20;S1551-7411(21)00313-2, Applications for pharmacogenomics in pharmacy practice: A scoping review (43 PGx studies reviewed)
 - ▷ “Pharmacogenetic multi-gene panel tests within MTM (medication therapy management) demonstrate an approximate **50% decrease in emergency visits and hospitalizations** in elderly polypharmacy patients.”