Regulatory Science

45 Off-label prescription of common antidepressants: Examination of evidence available to clinicians

Reem Alharithi and Eunjoo Pacifici
University of Southern California

OBJECTIVES/GOALS: The overarching objective of this study is to inform clinicians, patients, and other stakeholders of the level of evidence and the real-world risk-to-benefit profiles associated with older antidepressant drugs that are frequently used off-label. METHODS/STUDY POPULATION: A PubMed literature review was performed to identify clinical trials conducted in the USA between 2013 and 2023 for trazodone and 2000 and 2023 for escitalopram and citalopram. These studies were examined for robustness, due to sample size, study design, and generalizability. Findings were compared with information provided on UpToDate® LexiDrug™, a primary database used by clinicians to inform prescribing practice. To explore risks associated with off-label use, the FDA adverse event reporting system was probed to identify adverse events reported for each drug; results were systematically categorized by reason for use. To compare the volume of on-label to off-label prescriptions, data will be extracted from electronic health records from University of Southern California-affiliated hospitals. RESULTS/ANTICIPATED RESULTS: Studies conducted on off-label prescriptions of these drugs show primarily small sample sizes, pointing to a limitation in generalizability. For citalopram (N = 77) and trazodone (N = 42), over half of their off-label studies had samples of 50 participants or less. These two drugs also showed low evidence rating for off-label prescription on LexiDrug due to limited power studies. Multiple health agencies recommend against off-label prescriptions for trazodone due to insufficient evidence. There is limited data in the US regarding the volume of off-label prescriptions; however, trazodone's FAERS analysis indicated a large proportion of adverse event reports (1099/7239) come from cases where trazodone was used for insomnia, an off-label indication, compared to depression, the on-label indication (464/7239). DISCUSSION/SIGNIFICANCE OF IMPACT: With 1 in 6 Americans taking antidepressants and 40%–80% of these psychiatric prescriptions being employed off-label, there is a serious and present risk for patients regarding the safety and efficacy of these medications. Awareness must be brought to clinicians to protect patients and encourage evidence-based practice.

Research Management, Operations, and Administration

46 Do we know it when we see it? Moving toward a systematized identification of translational science

Melissa Vaught[1] and Paul J. Martin[2]
[1]University of Washington and [2]Fred Hutchinson Cancer Center and University of Washington

OBJECTIVES/GOALS: We aim to establish a systematic approach to distinguish translational science from translational research. Our goal is to create a simple tool that would enable individuals with different backgrounds and levels of expertise to readily determine whether a study truly features translational science. METHODS/STUDY POPULATION: Participants were recruited from a Clinical and Translational Science Award (CTSA) program hub and randomly divided into 2 groups. One group was asked, with minimal guidance, to categorize whether publications described translational science or translational research. The group met to resolve disagreements and identify key indicators and challenges in determining whether a study involves translational science. They provided input on a set of guiding questions intended to facilitate the identification of translational science. The second group did not participate in discussion or tool development. Both groups reviewed a new set of publications, using the tool to guide their assessments. RESULTS/ANTICIPATED RESULTS: Based on publication assessments, we will assess the percent agreement among reviewers in each group for each publication and across the set. We anticipate that the first group will exhibit higher agreement for its second round of review than its first, owing to the benefit of discussion with colleagues and provision of guiding questions. We anticipate that the tool will also promote higher agreement among the second group in their first round of review. We predict that both groups will exhibit high rates of agreement when reviewing with the support of guiding questions. DISCUSSION/SIGNIFICANCE OF IMPACT: This study will help us understand interpretations of translational science, a term that has sparked debate and disagreement within CTSA hubs. If successful, the guiding questions will provide CTSAs a tool to improve training, proposal responsiveness, and review for translational science projects.

Team Science

47 A CTS approach to golden allies: Merging adoptive cell therapy and nanotechnology in the fight against brain tumors†

John Figg[1], Wayne McCormack[2], Maryam Rahman[3], Frank Bova[3] and Catherine Flores[3]
[1]University of Florida; [2]University of Florida Clinical and Translational Research Institute and [3]University of Florida College of Medicine

OBJECTIVES/GOALS: Our lab's novel adoptive cellular therapy (ACT) significantly improves survival in brain tumor models. However, there is a lack of biomarkers to assess immunotherapy responses. Our objective is to use gold nanorods to track hematopoietic stem cell migration, a critical arm of ACT, and validate it as a prognostic biomarker. METHODS/STUDY POPULATION: Hematopoietic stem cells (HSCs) were isolated from the bone marrow of 6-week-old C57BL/6J mice and co-cultured with varying gold nanorod (GNR) concentrations and time points. GNR uptake in HSCs was evaluated with inductive coupled plasma mass spectrometry, two-photon luminescence, and tissue histology. After GNR co-culture, HSC viability and differentiation were quantified with flow cytometry and colony forming unit assays. To evaluate the impact of GNRs on HSC reconstitution, mice received myeloablative total body irradiation and intravenously received GNR-labeled HSCs. Computed tomography (CT) contrast of GNRs will be confirmed through microCT. Lastly, mice will intracranially receive KR158b

https://doi.org/10.1017/cts.2024.731