Drug & Poison Information Center Bulletin
Faculty of Pharmacy - Tanta University

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GLP-1 RAs reduce hyperkalemia risk, prolong RAS inhibitors use

When glucagon-like peptide 1 receptor agonists (GLP-1 RAs) are used instead of dipeptidyl peptidase-4 inhibitors (DPP-4is) in patients with type 2 diabetes (T2D), there is a decrease in the incidence of hyperkalemia and a longer duration of use of renin-angiotensin system inhibitors (RAS inhibitors), which is advised by guidelines.

Patients with type 2 diabetes (T2D) are frequently at risk for hyperkalemia, an electrolyte condition that might limit their usage of angiotensin-converting enzyme (ACE) inhibitors or angiotensin II receptor blockers (ARBs). Hyperkalemia can also be a source of anxiety for these patients. With an extended observation trial design, researchers compared the effects of GLP-1 RA vs DPP-4i on the risk of hyperkalemia using data from connected national registries and a healthcare utilization cohort comprising all residents of Stockholm, Sweden.

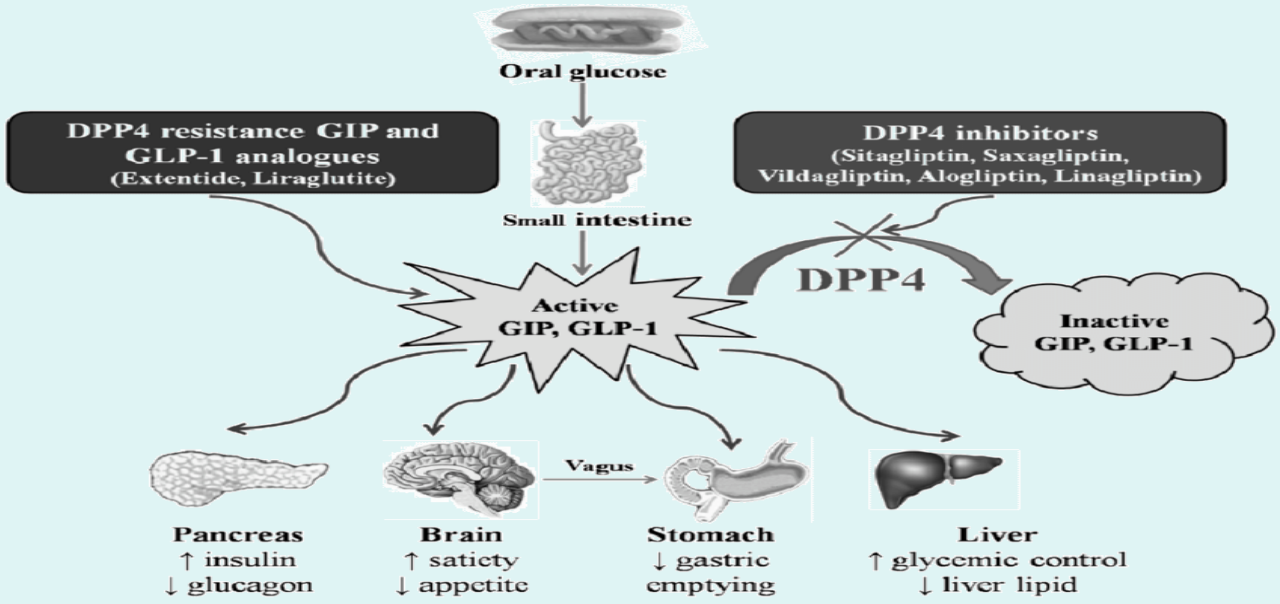
Aim of study: To assess rates of RASi persistence and hyperkalemia in newly prescribed GLP-1RAs against dipeptidyl peptidase-4 inhibitors (DPP-4is).

Design, Settings and Participants: All adult T2D patients in the Stockholm, Sweden, area who started GLP-1RA or DPP-4i medication between January 1, 2008, and December 31, 2021 (33,280 patients), were included in this cohort research. Between October 1, 2023, and April 29, 2024, the analysis was carried out.

Outcomes: The incidence of hyperkalemia (potassium level, > 5.0 mEq/L) was the primary outcome The incidence of moderate to severe hyperkalemia (potassium level, > 5.5 mEq/L) was the secondary endpoint, while A subgroup of 21,751 T2D patients who were taking RAS inhibitors at the time of starting GLP-1 RA or DPP-4i had their adherence to RAS inhibitors therapy assessed in a secondary analysis.

Results: A total of 33 280 individuals (13 633 using GLP-1RAs and 19 647 using DPP -4is; mean [SD] age, 63.7 [12.6] years; 19 853 [59.7%] male) were included. The median (IQR) time receiving treatment was 3.9 (1.0-10.9) months. Compared with DPP-4i use, GLP-1RA use was associated with a lower rate of any hyperkalemia (HR, 0.61; 95% CI, 0.50-0.76) and moderate to severe (HR, 0.52; 95% CI, 0.28-0.84) hyperkalemia. Of 21 751 participants who were using RAS inhibitors, 1381 discontinued this therapy. The use of GLP-1RAs vs DPP-4is was associated with a lower rate of RAS inhibitors discontinuation (HR, 0.89; 95% CI, 0.82-0.97). Results were consistent in intention-to-treat analyses and across strata of age, sex, cardiovascular comorbidity, and baseline kidney function.

Conclusion: Compared to DPP-4i use, the use of GLP-1RAs was linked to reduced rates of hyperkalemia and sustained use of RAS inhibitors in this trial of T2D patients receiving routine clinical treatment. These results emphasize that GLP-1RA therapy may improve the clinical outcomes in this population and permit the broader use of guideline-recommended drugs.



References:

- Huang T, Bosi A, Faucon A, et al. GLP-1RA vs DPP-4i Use and Rates of Hyperkalemia and RAS Blockade Discontinuation in Type 2 Diabetes. JAMA Intern Med. Published online August 12, 2024. doi:10.1001/jamainternmed.2024.3806.
- GLP-1 RAs Reduce Hyperkalemia Risk, Prolong RASi Use. **Available at:** https://www.medscape.com/viewarticle/glp-1-ras-reduce-hyperkalemia-risk-prolong-rasi-use-2024a1000f34?form=fpf. Accessed in August, 2024.

Ph. Marwa Elsayed, PGCPD. M.Sc. cand.

European medicines agency rejects Alzheimer's drug Lecanemab

On July 2024, the Committee for Medicinal Products for Human Use (CHMP) of the European Medicines Agency (EMA), recommended the refusal of the marketing authorization for Leqembi (lecanemab). The committee said that the observed effect of lecanemab on delaying cognitive decline did not counterbalance the risk of serious side effects, particularly the frequent occurrence of amyloid-related imaging abnormalities (ARIAs) that involve swelling and potential bleeding in the brain.

At the same time, the Medicines and Healthcare products Regulatory Agency (MHRA) has approved on 22 August 2024, the drug for use in the early stages of Alzheimer's disease as it shows some evidence of efficacy in slowing progression of the disease. Also, the National Institute for Health and Care Excellence (NICE), said that The benefits of lecanemab are too small to justify the costs.

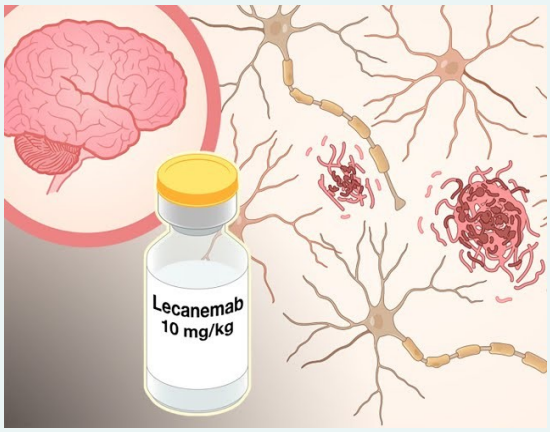
Lecanemab was approved by the U.S. Food and Drug Administration (FDA) on January 2023 for the treatment of Alzheimer's disease.

What is Lecanemab?

Lecanemab is a humanized immunoglobulin gamma 1 (IgG1) monoclonal antibody directed against aggregated soluble and insoluble forms of amyloid beta. It was developed with the aim of treating adults with mild cognitive impairment due to Alzheimer's disease and early-stage Alzheimer's disease.

In its assessment, the CHMP reviewed the findings of a study involving 1795 people with early Alzheimer's disease who had amyloid beta plaques in the brain and received either Lecanemab (n = 898) or placebo (n = 897).

The study, which was published in the New England Journal of Medicine (NEJM) in 2022, showed that Lecanemab reduced markers of amyloid in early Alzheimer's disease and resulted in moderately less decline on measures of cognition and function than placebo at 18 months but was associated with adverse events.

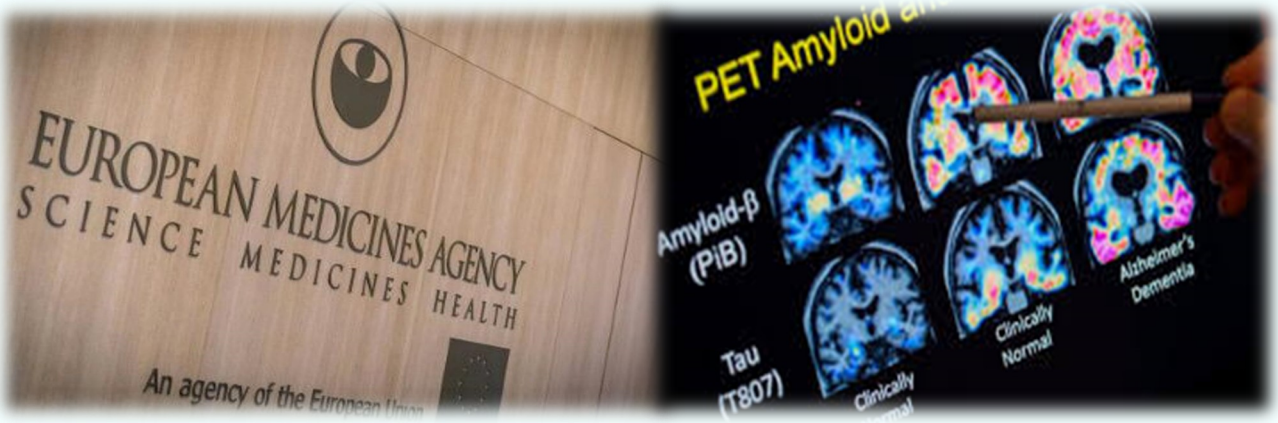


Although most cases of ARIA in the main study were not serious and did not involve symptoms, some patients had serious events, including large bleeds in the brain which required hospitalization.

Furthermore, the CHMP was concerned by the fact that the risk for ARIA is more pronounced in people who have a certain form of the gene for the protein apolipoprotein E (ApoE4). The risk is highest in people with two copies of the ApoE4 gene, who are known to be at risk of developing Alzheimer's disease and would therefore be likely to become eligible for treatment with lecanemab.

References:

- Refusal of the marketing authorisation for Leqembi (lecanemab). **Available at:** https://www.ema.europa.eu/en/documents/smop-initial/questions-answers-refusal-marketing-authorisation-leqembi-lecanemab_en.pdf. Accessed in August, 2024.
- EMA Refuses Marketing Authorization for Alzheimer's Drug. **Available at:** https://www.medscape.com/viewarticle/ema-refuses-marketing-authorization-alzheimers-drug 2024a1000dsw?icd=login_success_email_match_norm. Accessed in August, 2024.
- Lecanemab licensed for adult patients in the early stages of Alzheimer's disease. **Available at:** https://www.gov.uk/government/news/lecanemab-licensed-for-adult-patients-in-the-early-stages-of-alzheimers-disease. Accessed in August, 2024.
- Benefits of new Alzheimer's treatment lecanemab are too small to justify the cost to the NHS. **Available at:** https://www.nice.org.uk/news/articles/benefits-of-new-alzheimer-s-treatment-lecanemab-are-too-small-to-justify-the-cost-to-the-nhs. Accessed in August, 2024.
- EU regulator rejects Alzheimer's drug lecanemab. **Available at:** https://www.bbc.com/news/articles/crgm0v1ne08o. Accessed in August, 2024.
- Lecanemab in Early Alzheimer's disease. **Available at:** https://www.nejm.org/doi/full/10.1056/NEJMoa2212948. Accessed in August, 2024.



Ph. Amr M. Noweir, B.Sc.

The most effective drug for preventing and treating NSAID or Aspirin-induced bowel injury

Nonsteroidal anti-inflammatory drugs (NSAIDs) and aspirin are the most commonly prescribed drugs worldwide. Their popularity attests to their efficacy as anti-inflammatory, analgesic, and antipyretic agents. An estimated 30 million people worldwide take NSAIDs daily. However, NSAID and aspirin use are limited by their associated gastrointestinal (GI) toxicity. These drugs can cause serious injury to any part of the GI tract, including life-threatening complications such as bleeding or perforation. The worldwide prevalence of NSAID and aspirin-associated gastric and duodenal ulcers is 9% to 22% for NSAID and 11% of patients with severe hemorrhage or perforation occurring in <1% of patients annually.

An increasing number of individuals have been using NSAIDs or aspirin to manage and prevent cardiovascular, rheumatic, or spinal diseases, which has led to an elevated risk for small bowel injuries among users.

In July, 2024 a new published meta-analysis was conducted to compare the effectiveness of mucoprotectants for the treatment and prevention of small bowel injuries in adults receiving NSAIDs or aspirin.

Methodology:

Researchers performed a meta-analysis of 18 randomized controlled trials overall, six studies analyzed the treatment effectiveness of rebamipide, misoprostol, probiotics, and polaprezinc; 12 studies analyzed the prophylactic effect of rebamipide, geranyl-geranylacetone, misoprostol, ecabet, equalen, muscovite, and rifaximin.

The primary outcome was a change in the number of injuries in the jejunum or ileum on capsule endoscopy before and after using mucoprotectants.

Results:

Mucoprotectants reduced the extent of mucosal injuries (mean difference, −4.74; $P = .02$), with misoprostol being the only drug with a significant therapeutic effect (mean difference, −9.88; $P < .001$).

They also showed a protective effect against NSAID or aspirin-induced small bowel injuries (mean difference, −1.27; $P < .001$), with rebamipide being the only drug with a significant prophylactic effect (mean difference, −1.85; $P < .001$).

Conclusion:

Misoprostol is highly effective in treating small bowel injuries caused by nonsteroidal anti-inflammatory drugs (NSAIDs) or aspirin, whereas rebamipide offers modest protection against such injuries, according to a meta-analysis.

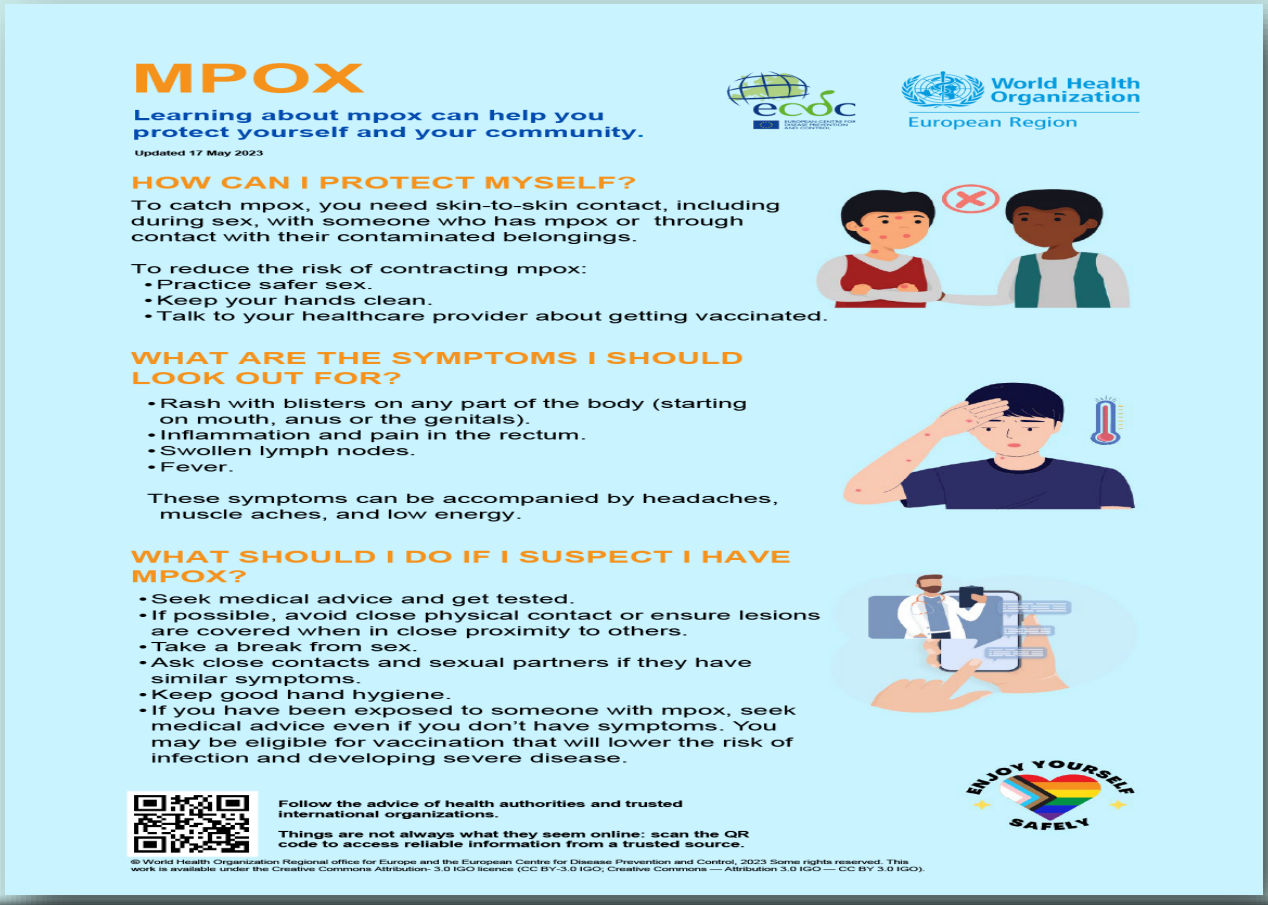
Limitations:

Only randomized clinical trials were included in this meta-analysis, limiting the number of available patients. Many studies that investigated the efficacy of probiotics for the treatment of bowel injuries were excluded. The effects of proton pump inhibitors, which are frequently administered along with NSAIDs to prevent bleeding, were not considered.

References:

- Choe, Y. et al. (2024) 'Drugs effective for nonsteroidal anti-inflammatory drugs or aspirin-induced small bowel injuries', Journal of Clinical Gastroenterology [Preprint]. doi:10.1097/mcg.0000000000001975.
- Bhattacharya, S. (2024) Which drug is best in NSAID or aspirin-induced bowel injury?, Medscape. **Available at:** https://www.medscape.com/viewarticle/which-drug-best-preventing-treating-nsaid-or-aspirin-induced-2024a1000f30. Accessed in August, 2024.

By: Mai Mousa. PharmD., M.Sc., PhD. CAND.



Foreign students summer training activity, 2024

Under the patronage of Prof. Dr. Mona Abdelhamid El-Asar, Dean of the Faculty of Pharmacy, Tanta University, and the supervision of Prof. Dr. Naglaa Abdelaziz El-Shitani, Vice Dean for Education and Student Affairs, the Faculty of Pharmacy witnessed the conclusion of training for foreign students at level three at the educational pharmacy of the faculty. The Drug and Poison Information Center conducted the training from Monday, August 19th to Thursday, August 29th, 2024. The training was led by the Drug and Poison Information Center' pharmacists : Ph. Mai Moussa, Ph. Marwa El-Sayed, Ph. Nahla El-Deeb, Ph. Mohamed Talaat, and Dr. Raghda El -Mahdi.

The training program effectively covered key areas in pharmacy practice, from drug information resources and patient counseling to medication and diseases management. This comprehensive approach equipped international students with practical skills essential for their future careers. The commitment of the faculty and training team ensured a valuable and engaging learning experience for all participants.

Training feedback

Contact us

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Vision

The vision of Tanta University DPIC is to improve national healthcare service through provision of evidence-based, unbiased, patient oriented drug information services & adverse drug reporting system.

Mission

* Responding to drug inquiries related to the use of the drug and providing the health care professionals and patients with drug information related to the patient's care to achieve the optimal use of the drug in addition to the provision of other toxicological managing information.
* Educational activities to support the rational optimal use of drugs as well, supporting research activities.
* Continuous medical education and training courses in various fields of pharmacy for students, undergraduates, postgraduate students, and researchers.
* Issuing a Drug Information Bulletin periodically to take a look at medical & pharmaceutical news.
* Supporting the National Pharmaceutical Vigilance Program by following up and monitoring side effects and problems related to use of pharmaceutical preparations within regional hospitals.
* Contributing to the establishment of various treatment protocols and prescription booklet services in regional hospitals.

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