Artificial intelligence may reduce frequency of adverse drug events

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Adverse drug events (ADEs), injuries related to drug-related medical interventions, are considered some of the most prevalent types of health-care-related harm. Given that these events are costly and often morbid, artificial intelligence (AI) is considered a promising tool in helping researchers and clinicians understand preventable and novel ADEs, as

well as a patient's likelihood of having ADEs before receiving prescription medications.

Researchers at Brigham and Women's Hospital conducted a scoping review of 78 articles to identify the key use cases in which AI could be harnessed to prevent or mitigate the effects of ADEs. The review's authors describe the use of AI to reduce the frequency of ADEs as an emerging area of study, and identify several use cases in which AI could contribute to reducing or preventing ADEs. Furthermore, genetic information is thought to be critical in improving the performance of AI algorithms. With the prevalence of genotyping, researchers are confident that this type of data can become more accessible over time, and can ultimately be used to improve AI algorithm functioning and patient health.

"One of our challenges is how to identify and select the most relevant genetic variables among large amounts of genetic profile information," said lead author Ania Syrowatka, Ph.D., of the Division of General Internal Medicine and Primary Care. "Through this paper, we wanted to present a review of how AI could be used to prevent ADEs, and in the process, learned that we are still in the early stages of development and implementation. Systematic and comprehensive evaluations of these types of tools in prospective trials are necessary to generate the evidence to advance this field in a transparent, safe, and effective way."

More information: Ania Syrowatka et al, Key use cases for artificial intelligence to reduce the frequency of adverse drug events: a scoping review, *The Lancet Digital Health* (2021). DOI: 10.1016/S2589-7500(21)00229-6

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