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Letter to the Editor

Medication Errors begin with Production, Marketing, and Approval

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Letter to the Editor

We read with interest the systematic literature review by Govil *et al*. on the incidence, frequency, and severity of medication errors in hospitalized patients in India. The study included investigations from January 2014 to April 2025 and used the databases Medline, Cochrane, Science Direct, and Google Scholar [1]. Of the 40 included studies, the median incidence rate of medication errors was 34.1% in 10 studies in intensive care units and 26.7% in 28 studies in general wards [1]. Nine percent of medication errors required monitoring, 2.2% required intervention, and 0.1–1.2% resulted in a prolonged hospital stay [1]. The review is promising, but some points require further discussion.

First, the frequency of medication errors depends heavily on the definition of the term "medication error." The definition of medication errors was assessed in the review only in terms of its presence, not its content [1]. Medication errors should encompass not only the prescribing, dispensing, administration, and monitoring phases [1], but also manufacturing, marketing, and regulatory approval. Errors can also occur in the supply of medications by the hospital pharmacy. In a broader sense, medication errors also affect the approval of drugs. There are numerous examples of drugs that were developed, manufactured, and approved, but later proved to have such serious adverse effects that they had to be withdrawn from the market. Other drugs remain on the market, are being taken by patients, have serious adverse effects, and have still not been withdrawn in some countries (e.g., bendamustine, thiotepa, voriconazole). Examples of drugs that have had to be withdrawn from the market include fenfluramine-dexfenfluramine (causing serious cardiac side effects), propoxyphene (increased risk of stroke), diethylstilbestrol (causing cancer), rofecoxib, cisapride, thalidomide, troglitazone, and cisapride. Therefore, medication errors can also originate with regulatory authorities, as they are responsible for assessing and evaluating the efficacy and safety of medicines [2].

The second point is that medication errors are frequently due to the prescribing of drugs that interact so strongly that they cause adverse effects. Since the vast majority of drug combinations, especially when taking more than two medications, have never been screened for potential side effects, drug combinations should be screened for interactions before being prescribed. Many patients taking two or more drugs (drug cocktails) are at risk of experiencing toxic effects simply due to the mutual influence of absorption, action, metabolism, and excretion of the drugs [3].

The third point is that the study also covered the period of the SARS-CoV-2 pandemic. Therefore, it is important to know to what extent the pandemic influenced the frequency and occurrence of medication errors. Since the pandemic caused enormous stress for everyone involved - physicians, hospital pharmacists, nurses, patients, and their families - it is conceivable that the infection rate increased significantly during this period.

In summary, the frequency and incidence of medication errors depend heavily on the definition of a medication error. A broader definition should also include errors in pre-marketing efficacy studies, and unintentional drug interactions can represent another type of medication error. Analysis of medication errors should also include hospital pharmacies.

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