

Analysis of Adverse Drug Reactions Associated with Intravenous Carboxymaltose (2020–2023)

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BACKGROUND

Ferric carboxymaltose (FCM) represents an important advancement in iron deficiency anemia treatment, allowing rapid repletion of iron stores through a non-dextran, macromolecular iron complex. Its carbohydrate shell prevents rapid iron dissociation, enabling high single doses with minimal free iron toxicity risk. Despite its favorable efficacy profile,FCM is associated with various adverse drug reactions (ADRs) that require clinical attention.

Objective

To evaluate adverse drug reactions (ADRs) associated with intravenous carboxymaltose.

Design

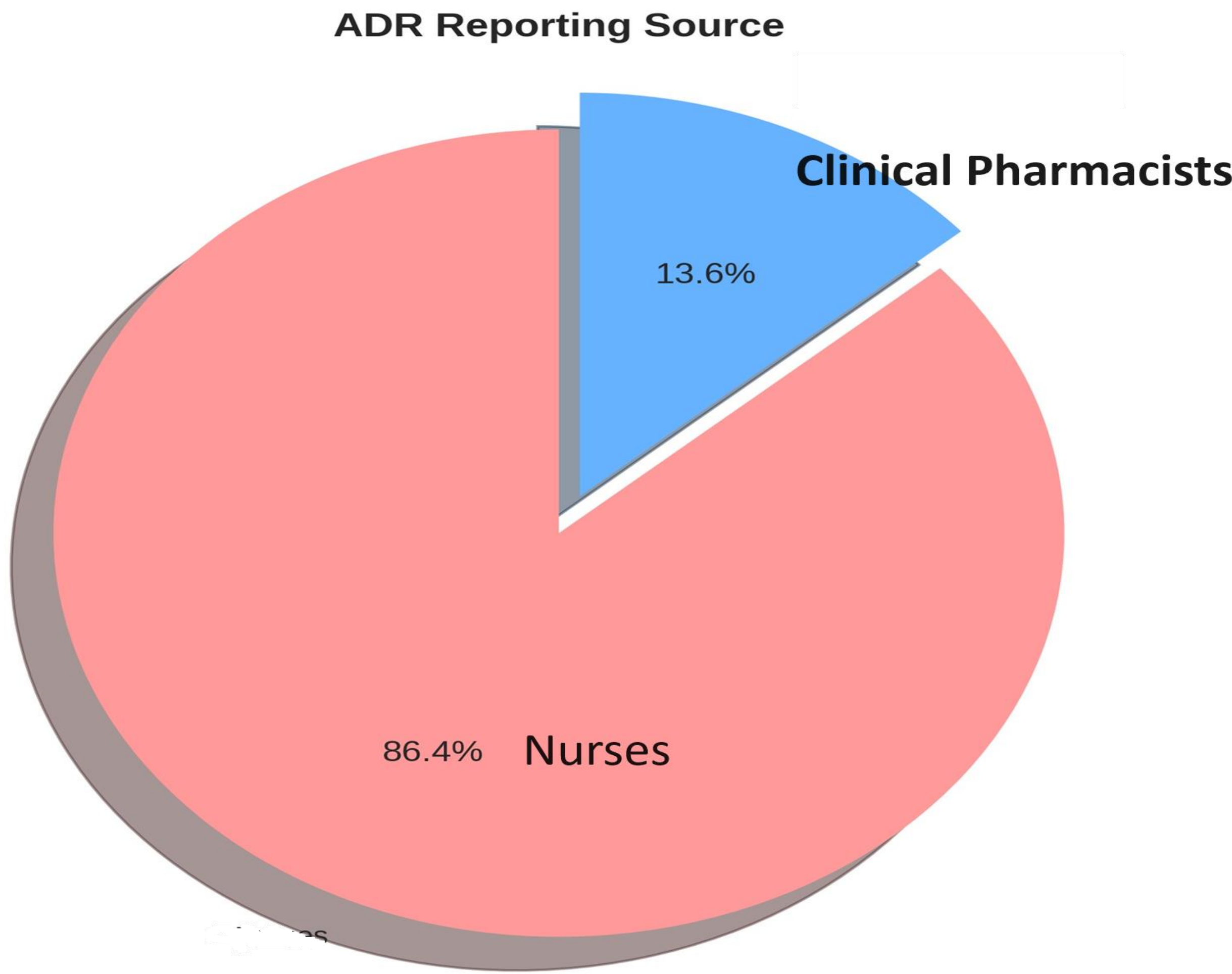
A retrospective observational study systematically analyzing ADRs reported during a three-year period (2020-2023).

METHODS:

Data were extracted from ADR reports maintained by the Medication Safety Officer at AWH, including 81 patients who received intravenous carboxymaltose. Information collected encompassed patient demographics (age and gender), reaction types, infusion rates, timing of reactions, and reporting sources. Data were categorized and analyzed to identify trends and assess the impact of infusion practices on ADR occurrence.

RESULTS

The majority of ADRs were reported in females (98.8%), with 72.8% of cases occurring in patients aged 21–40 years. Allergic and skin reactions were the most common (79.0%), followed by respiratory reactions (19.8%) and gastrointestinal symptoms (1.2%). Moderate infusion rates (over 1 hour) were used in 75.3% of cases and were associated with fewer severe ADRs compared to rapid infusion rates (15–20 minutes, 23.5%). Reactions occurred predominantly after infusion completion (55.6%), while 32.1% occurred during infusion and 14.8% immediately after initiation. Nurses reported 86.4% of ADRs, with the remaining 13.6% reported by clinical pharm:



Summary of Adverse Drug Reaction (ADR) Findings

Category	Finding	Percentage
Gender	Females	98.8%
	Males (inferred)	1.2%
Age	21-40 years	72.8%
	Other age groups (inferred)	27.2%
Reaction Type	Allergic and skin reactions	79.0%
	Respiratory reactions	19.8%
	Gastrointestinal symptoms	1.2%
Infusion Rate	Moderate (over 1 hour)	75.3%
	Rapid (15-20 minutes)	23.5%
	Other/unspecified (inferred)	1.2%
Reaction Timing	After infusion completion	55.6%
	During infusion	32.1%
	Immediately after initiation	14.8%
Reporting Source	Nurses	86.4%
	Clinical pharmacists	13.6%

CONCLUSION :

The findings indicate that females aged 21–40 years are disproportionately affected by ADRs, with allergic and skin reactions being the most prevalent. Moderate infusion rates appear to be safer than rapid infusion rates. The frequent occurrence of ADRs post-infusion highlights the need for extended monitoring protocols. These results emphasize the importance of investigating gender-specific risk factors, reassessing rapid infusion protocols, and enhancing post-infusion monitoring to improve patient safety during intravenous carboxymaltose therapy. Future research should focus on underlying mechanisms and the efficacy of modified infusion protocols.