

DIALYZE-IHD: DIALYZABILITY OF DRUGS IN INTERMITTENT HEMODIALYSIS

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INTRODUCTION AND AIMS: Dialyzability, the extent of drug that is removed in a dialysis session, is primarily determined by the pharmacokinetics of the drug, technical aspects of the dialysis procedure, as well as the type of dialyzer membrane. Drug removal during hemodialysis affects drug effectiveness, the administration timing around the dialysis schedule, and the needs for supplemental dosing. However, dialyzability data is often limited and difficult to interpret in the available literature.

METHODS: A comprehensive literature review of pharmacokinetic studies of drug dialyzability in patients undergoing chronic hemodialysis was conducted. A total of 141 drugs were reviewed utilizing three databases (PubMed, EMBASE, and International Pharmaceutical Abstracts). The dialyzability data, where available, along with the pharmacokinetic parameters of the drugs and clinical experience of the renal pharmacists were used to provide dosing recommendations for clinician use in hemodialysis units.

RESULTS: The medications are grouped by indications and their dialyzability properties are presented within each class, along with recommendations and rationales for adjustments, if any, in dosing and administration timing around the hemodialysis schedule. An example of these results have been provided in the accompanying table.

Angiotensin Converting Enzyme Inhibitors	
Drug	Captopril
Molecular Weight (Da)	217
Excreted Unchanged (%)	40-50
Normal Half-Life (Hours)	2-3
End-Staged Renal Disease Half-Life (Hours)	21-32

Plasma Protein Binding (%)	25-30
Volume of Distribution (L/kg)	0.7-3
Dialytic Plasma Clearance (ml/min)	Not available
% Dialyzed	40 (High Flux)
Intermittent Hemodialysis Dosing	12.5-50 mg PO q24h
Administration Timing Around Hemodialysis Session	Administer Post Hemodialysis

These results were presented in various formats which included a poster, pocket-sized handbook, and a website for easy access.

CONCLUSIONS: This literature review combined with clinical experience provides dosing recommendations for patients undergoing intermittent hemodialysis. The information presented could be beneficial for clinicians caring for patients in the hemodialysis units.