## Introduction

Atorvastatin (ATS) is the gold-standard treatment for hypercholesterolemia and the prevention of cardiovascular illnesses caused by dyslipidemia around the world. Physiologically based pharmacokinetic (PBPK) models have been positioned as a signi cant tool for the study of complex pharmacokinetic (PK) processes and their extrapolation in speci c sub-populations, leading to regulatory acceptance [1]. In recent years, several PBPK models of ATS have been produced, each addressing a distinct element of ATS's PK features. e goals of this study are to I outline the physicochemical and pharmacokinetic properties involved in the time-course of ATS, and (ii) assess the primary highlights and limits of the PBPK models of ATS that have been published thus far. Common features relating to the physicochemical characteristics of ATS are included in the PBPK models. However, the analyte tested, the kind and in uence of transporters and metabolic enzymes, and the permeability value employed all varies signi cantly. is review also outlines signi cant processes (lactonization, P-gp contribution, ATS-Ca solubility, simultaneous management of numerous analytes, and experimental data in the target population) that would improve PBPK model prediction and make it a useful tool for ATS dose optimization [2-4].

Patients with chronic renal failure frequently have a secondary form of complicated dyslipidaemia, and lipid-lowering therapy may be bene cial. Although atorvastatin has been proven to e ectively lower levels of atherogenic lipoproteins in patients with renal failure, there is a paucity of pharmacokinetic data in haemodialysis patients. Hypercholesterolaemic haemodialysis patients were given 40 mg (n=12) or 80 mg (n=11) atorvastatin once daily for two weeks, initially as a single dose and subsequently continuously. LC/MS/MS was used to determine plasma levels of atorvastatin and its active and inactive metabolites, and pharmacokinetic characteristics (Cmax, tmax, AUC, t1/2) were compared between single and multiple dosing, as well as between di erent dosages [5].

A er single and 2-week multiple dosing, the pharmacokinetic characteristics of the parent drug atorvastatin acid were not signi cantly

loading method. Due to toxicity concerns, it is essential to explore a rapid and reliable method to e ectively isolate and quantify the non-liposomal, namely, free CPT-11and total CPT-11 in plasma. is study focuses on separation of non-liposomal CPT-11, evaluation of the