Metabolism of the taxanes including nab-paclitaxel

Markus Joerger

Introduction: The classical taxanes (paclitaxel, docetaxel), the newer taxane cabazitaxel and the nanoparticle-bound nab-paclitaxel are among the most widely used anticancer drugs. Despite years of research, the optimal dosing regimen (weekly vs 3-weekly) and optimal dose is still controversial, as is the value of pharmacological personalization of taxane dosing. Areas covered: This review provides an overview of the pharmacological properties of the taxanes, including metabolism, pharmacokinetics-pharmacodynamics and aspects in the clinical use of taxanes. The latter includes the ongoing debate on the most active and safe regimen (paclitaxel, docetaxel, nab-paclitaxel), the recommended initial dose (cabazitaxel) and pharmacological dosing individualization. Expert opinion: Taxanes share the characteristics of extensive hepatic metabolism and biliary excretion, the need for dose adaptation in patients with liver dysfunction, and substantial pharmacokinetic variability even after taking into account known covariates. Data from clinical studies suggest that optimal scheduling of the taxanes is dependent not only on the specific taxane compound, but also on the tumor type and line of treatment. Finally, treating oncologists should be aware of the substantial risk for drug-drug interactions that is a direct consequence of the complex hepatic metabolism of the taxanes.