Antiviral Chemotherapy, Past Present & Future

Paul S Lietman
Division of Clinical Pharmacology, the Johns Hopkins University, Baltimore, MD

Clinical pharmacology is an attractive and intellectually exciting fleld. It is an applied science, a bridging discipline that should function at the interface between the basic sciences and clinical medicine and an academic disciplins encompassing teaching, patient care and research. Our research should serve as a model for excellence in clinical research.

An area of clinical research that is incredibly interesting is the area of drug development.

Clinical pharmacology is well positioned to understand and appreciate the marvelous achievements of basic sciences as applied to drug discovery. We should be able to assess research in preclinical areas and contribute to extrapolations to human diseases. We should be in an ideal position to lead in "first-time-in-humans" or Phase 1 studies of new drugs that seek to define pharmacokinetics and toxicity. We should be pivotal in the construction of rational dosing regimens to be used in clinical trials. We should be leaders in early "proof-of-principle" or Phase II studies in humans with disease. We can also contribute to later or Phase III clinical trials, especially in such areas as individualization of drug dosing, drug-drug and drug-disease interactions and toxicologic mechanisms, as well as in post-marketing or Phase IV studies.

I shall attempt to illustrate these possibilities using examples from our own Division of Clinical Pharmacology in the area of antiviral chemotherapy. These will include studies of acyclovir, ganciclovir and famciclovir for herpes viruses as well as zidovudine, dextran sulfate, a TAT antagonist and a new dithiolthione for HIV.