



## A Step Ahead in Clinical Pharmacokinetic Services

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Vancomycin, a glycopeptide antibiotic with bactericidal activity against most gram positive bacteria need to be dosed based on patients weight, type of infection and renal function. Vancomycin trough concentration is the surrogate of area under the curve (AUC) and routinely considered the most reliable and calculable method for monitoring. This antibacterial agent has two major adverse effects; nephrotoxicity and ototoxicity which are both related to trough concentration. A number of nomograms are designed to assist in dose adjustment process of the medication. Since these nomograms are based on population pharmacokinetics, it is necessary to provide a comprehensive pharmacokinetic calculation and monitoring for each individual patient.

In Shariati Hospital affiliated to Tehran University of Medical Sciences (TUMS), Therapeutic Drug Monitoring (TDM) service has been started since November 2012 with a close collaboration of infectious disease and pharmacotherapy specialists.

This service includes initial consultation sent to the hospital pharmaceutical care department. Each consultation is responded by pharmacotherapy specialists started with assessing the patient, calculating the appropriate initial dose and interval, also following the serum levels and renal functions. The doses are adjusted if necessary based on our intra-department developed protocol.

We initially started the TDM service in surgery, neurosurgery and open-heart intensive care units. At this point, we cover almost all wards except hematology and BMT.

The total of 249 consults and 2173 daily visits have been done since starting this project. During this period 512 Vancomycin serum level were ordered. All medical services are receptive for having this level of cooperation with pharmacotherapy service.

Due to the lack of equipped laboratory units to measure medication serum levels in hospital, the samples need to be sent to off campus laboratory. As a result approximately one-third of ordered serum levels were not reported back to our service in a timely manner.

The mission of this service is to expand TDM services for other medication including aminoglycosides, digoxin, anticonvulsants and immunosuppressants..

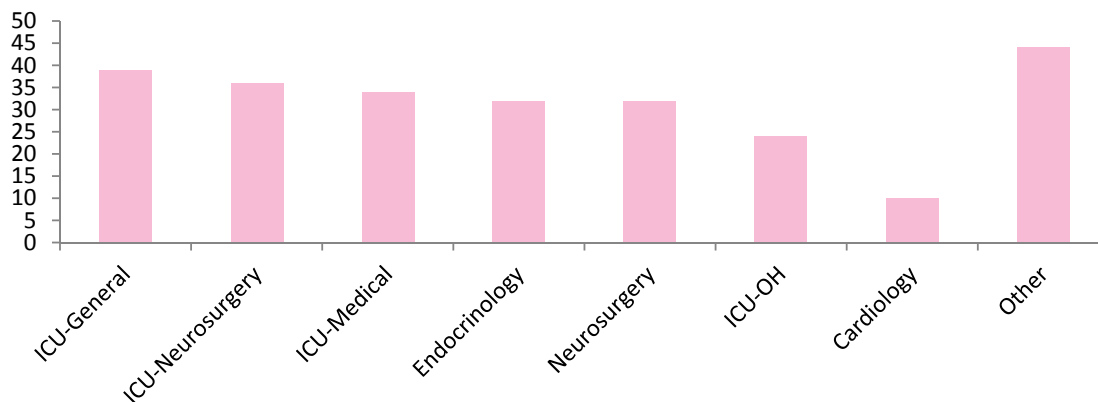
In conclusion, to reduce the toxicity and enhancing

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Number of consults in each ward of Shariati Hospital



the efficacy of specific medications, TDM is one of the mainstays in pharmacotherapy services and patient care.

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