



Dear Readers,

As of now medicines are being taken without regard of the time as there is not much awareness among the health care practitioners that time of drug administration in some of the drugs and diseases can make a huge difference in their pharmacokinetics as well as therapeutic response.

There is a Biological clock in our body, Master Clock being situated in the hypothalamus and Peripheral clocks in the organs. There are clock genes which regulate the release of hormones and metabolic events at rhythmic intervals in our body. The biological rhythms what we call are hypothetical cycles and are of three types namely Circadian (24 cycle), infradian (> 24 cycle) and ultradian (< 24 hrs), the most popular one being circadian rhythm.

Many diseases such as Asthma, Rheumatoid arthritis, Cardiovascular diseases, Peptic ulcers, Diabetes and Cancer show peak symptoms at a time of the day. For example, there is an early morning stiffness of joints in case of arthritis due to rise of pro-inflammatory cytokines, such as interleukin-6 which shows peak levels during the night and early morning, at a time when plasma cortisol is lowest.

It has been demonstrated that “susceptibility rhythms” to drugs may differ between healthy tissue and cancerous tissue which can be made use of in chemotherapy.

Similarly peaking of blood pressure and risk of heart attack appears to be greatest during the early morning hours after awakening. Research shows that stomach acid secretion is 2-3 times greater between 22:00 and 02:00 than in the day.

Knowledge of chrono therapeutics helps to dose the drugs according to a schedule that corresponds to the biological rhythms.

There is certainly a need of research in Chrono therapeutics to understand what is the best time to administer a medication for maximum benefits and least adverse reactions.

There is also a need of research in pharmaceutical science to identify the marker genes such as clock genes for all other diseases as well.

So, let's all look at this potential area and take up more studies in chronopharmacokinetics/chronotherapeutics to maximize the benefits of therapy and reduce toxicity.

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