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## Design of chronotherapeutic drug delivery systems for the management of diabetes mellitus

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Chronotherapeutic systems are designed over the concept of chrono-pharmaceutics in which there is specificity in delivering higher amount of drug in a burst at circadian timings correlated with specific pathological disorder to achieve maximum drug effect. In these systems there is a transient release of certain amount of drug within a short period of time immediately after a predetermined off-release period. Diabetes is one of the diseases where the constant drug levels are not preferred but needs a pulse of therapeutic concentration when the blood sugar levels are high i.e., after the meals or at night. Circadian variations of glucose and insulin in diabetes have been extensively studied and the clinical importance of insulin substitution in diabetes has been well exploited. The chronotherapeutic system can be designed to achieve many pulsatile drug deliveries from a single system at the time when the blood sugar level is high i.e., after breakfast, after lunch and post dinner or late at night. The once a day drug chronotherapeutic drug delivery system can be optimized to deliver the drug at the time of requirement of the body and at the site of its action and absorption in the gastro intestinal tract. The system also has the capability to incorporate single drug or multiple drugs with different mechanisms and site of action to achieve holistic patient friendly treatment for the management of the disease.

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## Prevalence of diabetes among household women living in tribal state of India

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**Background:** Annually about 4.6 million deaths are being attributed to diabetes mellitus which is one of the growing public health problem world-wide. The most dangerous thing about diabetes is that more than 50% of them are unaware of their diabetes status and more so among the household women who are neglected the most.

**Objectives:** (i) To assess the prevalence of diabetes (DM) and to co-relate risk factors associated if any among household women. (ii) To carry out lecture cum discussion to increase their knowledge and teach them simple preventive cum precautionary measures based on the prevalence.

**Materials & Methods:** A cross-sectional study was carried out among all the household women staying in a particular community of tribal state. Data was collected among 1373 women who consented for the study using a pre-tested self-administered structured questionnaire and relevant investigations were carried out.

**Results:** The mean age of the participants was 29.01 with SD of 5.71. Majority (63.4%) of them basically belonged to urban areas. 65% of them had a family monthly income of less than 20,000 while 2.5% had above 40,000. 65% were having mild anemia, while 9% and 1% had moderate and severe anemia respectively. The prevalence of DM was 0.30% while 2% were pre-diabetic. 16% were obese and 38% were overweight. Obesity was significantly associated with DM ( $P=0.041$ ). Similarly income was significantly associated with obesity ( $P=0.00$ ) and DM ( $P=0.010$ ). An intensive lecture cum discussion and video display was carried out with regards to lifestyle diseases preventive cum precautionary measures which were appreciated by all.

**Conclusion:** Prevalence of diabetes and pre-diabetes was high even though no baseline data exists. Intensive information, education, communication (IEC) activities involving simple preventive measures targeted to household women and frequent check on diabetes is the need of the hour. Lifestyle pattern and local environmental factors may play an important role which needs to be studied in detail.

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