

Chronobiology is the branch of biology concerned with natural physiological rhythms and other cyclical phenomena. Chronobiological processes are integral to health and wellbeing, with unique implications in the perinatal period where non-drug interventions may be preferred. Chronobiology is inextricably linked with mood disorders, as these disorders are intrinsically rhythmic and reveal desynchronizations in the individuals whom they affect. The 2013 Perinatal Mental Health Meeting featured an overview of the field from the basic sciences to clinical applications.

Fred Turek, Ph.D. of Northwestern University explained that humans have innate circadian clocks throughout the body that operate cyclically even in the absence of external time cues. Consideration of chronobiology is critical to healthcare, as disruptions in circadian rhythms have been shown to impact everything from metabolism and immunity to cancer and psychological disorders.

Dan Oren, M.D. of Yale University followed with a discussion of light therapy in mood disorders. The interaction between humans and light is dynamic, and individuals may be impacted by changing exposures that occur with changing seasons. This is the basis for conditions like Seasonal Affective Disorder (SAD). Light boxes have proven effective for treating SAD, and are showing promising results as treatment for non-seasonal depression.

While light therapy can be beneficial in the appropriate context, John Gottlieb, M.D. of Northwestern University discussed how excess or ill-timed light exposure can have deleterious effects, particularly in patients with bipolar disorder. Timing matters, and blue wavelengths of light at night may lead to sleep problems and reduced cognitive function. These issues may be addressed through the use of blue blockers, which provide “virtual darkness.”

Dorothy Sit, M.D. of the University of Pittsburgh stressed the importance of timing and duration considerations when dosing light therapy. With appropriate follow-up, light therapy is advantageous in that this dose can be readily adjusted.

Madhukar Kumar, M.D. of Northwestern University provided an instructive overview of circadian based sleep disorders, and underscored that mood and sleep disorders often occur together.

Barbara Parry, M.D. of University of California, San Diego closed the workshop with a discussion of wake therapy, wherein patients are allowed limited sleep at a prescribed time for one night. Wake therapy has been shown to have an antidepressant effect in pregnant and postpartum women, and maybe be another viable non-pharmacological intervention.

Chronobiology and circadian rhythms have pervasive impacts on health that are important to consider when treating pregnant and postpartum women. They also present novel avenues for non-pharmacological treatment as we continue to expand our awareness of how the innate human clock is involved in biological processes.