

■ CNE Article

# Sleep Interrupted: Nocturnal Care Disturbances Following Hematopoietic Stem Cell Transplantation

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Sleep is an essential biologic and physiologic process that is vital for maintaining or achieving optimal health outcomes. Care requirements in hospitalized patients frequently result in nocturnal disruptions that impact sleep quality. This exploratory, retrospective study aimed to identify and quantify nocturnal care disruptions in patients undergoing hematopoietic stem cell transplantation. A total of 1,642 nocturnal care interactions occurred during 160 patient nights of data collection. An average of 41 nocturnal care interactions occurred per patient. Most occurred from 12–12:59 am and 4–4:59 am. Most patients (73%) had sleep disturbance recorded in their chart by nurses, but physicians documented sleep disturbances for only 28% of patients. Care practices may be modifiable to promote sleep in the hospital setting.

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**S**leep, a naturally recurring biologic and physiologic phenomenon, is essential for health and well-being. The importance of sleep in the hospital environment often is overshadowed by other competing needs, such as stabilizing vital signs and maintaining fluid and electrolyte balance. Given care requirements, frequent nocturnal disruptions in hospitalized patients has the potential to impact sleep quality (Tamburri, DiBrienza, Zozula, & Redeker, 2004). Frequent interactions between healthcare providers and patients during hours generally reserved for sleep may contribute to sleep-wake disturbances and lead to adverse patient outcomes.

High-dose chemotherapy followed by hematopoietic stem cell transplantation, an intensive cancer treatment, typically requires an extended hospital stay and places patients at risk for nocturnal care disruptions and sleep-wake disturbances. About 77% of patients undergoing hematopoietic stem cell transplantation report some problems with sleep during hospitalization, although the prevalence has not been studied extensively (Rischer, Scherwath, Zander, Koch, & Schulz-Kindermann, 2009). Recognition of potential sources of nocturnal care disturbances and examination of the timing of care provided during the night hours has not yet been documented in the nursing or stem cell transplantation literature. This information is needed to make decisions regarding the necessity and timing of care during

the night hours and to determine if care processes should be redesigned to minimize patient interactions at night and maximize the time intervals without interruptions. The purpose of this study was to examine nocturnal care disturbances in hospitalized patients undergoing stem cell transplantations. The specific aims of this exploratory, retrospective study were to (a) describe types and frequency of healthcare provider and patient interactions that occur between the hours of 9 pm and 7 am that may disturb patient sleep, (b) determine the frequency of sleep-wake disturbance recognition by healthcare providers in hospitalized patients undergoing stem cell transplantation, and (c) examine the relationship between nocturnal care disruptions and sociodemographic factors.

Sleep-wake disturbances are a common problem for people with cancer, with estimated prevalence rates ranging from 35% (Sharma et al., 2012) to more than 50% (Janz et al., 2007). The severity and incidence is likely higher in people undergoing hematopoietic stem cell transplantation because of the intensive nature of the treatment and resulting side effects, coupled with potentially long hospital stays. Although the cause of sleep-wake disturbances in hematopoietic stem cell transplantation is most likely multifaceted (see Figure 1), environmental conditions and care requirements at night during hospitalization account for at least some of the problem.