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**TITLE**

Sleep Latency and Vascular Endothelial Growth Factor In Long-Term Endometrial Cancer Survival

**HYPOTHESIS:**

The current study hypothesized that greater sleep disturbance, measured by prolonged sleep latency, would be predictive of shorter time to death in long-term endometrial cancer survival after controlling for important pathological and participant characteristics.

**BACKGROUND/AIMS:**

Psychosocial factors, such as sleep quality, have emerged as psychoneuroimmunologic influences in tumor growth, cancer progression, and survival. Previous research has shown that poor sleep is related to higher levels of vascular endothelial growth factor (VEGF), a protein that promotes angiogenesis by stimulating endothelial cells to proliferate. To date, no research has looked at the relationship between these variables and length of survival in endometrial cancer. This study examined the relationship of sleep latency, a component of sleep disturbance, and VEGF in long-term survival of women undergoing surgery for endometrial cancer.

Aims: (1) To investigate the relationship between biobehavioral, cancer pathology, and demographic characteristics to predict long-term survival of patients with endometrial cancer. (2) To determine if VEGF mediates the relationship between sleep latency and survival months

**METHODS:**

Seventy-five women undergoing a total abdominal hysterectomy with bilateral salpingo oophorectomy ( $M$  age=60.77±8.83,  $M$  survival months=91.325±39.02) for suspected endometrial cancer were enrolled. Participants completed the Pittsburgh Sleep Quality Index (PSQI) and a pre-operative blood draw for quantitation of VEGF using standardized ELISA. The University of Florida Oncology Data Center provided survival data.

**RESULTS & CONCLUSIONS:**

Most participants ( $n=43$ , 57%) reported clinically significant sleep problems as measured by the full-scale Global PSQI. After controlling for age, pre-surgical BMI, comorbidities, and cancer stage, multivariate Cox regression analyses revealed that higher VEGF ( $\beta=.383$ , HR=1.466,  $p=.040$ ) and greater sleep latency ( $\beta=0.688$ , HR=1.989,  $p=.009$ ) prior to surgery were associated with shorter survival. Individuals with the highest sleep latency scores had a 98.9% increase in the expected hazard of death. Causal mediation of survival data analyses indicated that every 50 unit increase of VEGF accounted for 37% of the mediated relationship between sleep latency and survival time. The results contribute to a larger body of research examining the interplay between biological and psychosocial factors in cancer progression and further support previous literature implicating sleep as a promoter of more advantageous health outcomes. Future research should examine the efficacy of psychological interventions to enhance positive sleep behaviors and quality of life in women diagnosed with gynecologic cancer.