

SEASONAL VARIATIONS IN MELATONIN AND SLEEP PATTERNS IN ANTARCTICA

D Majumdar, M Bhattacharyya, M. S. Pal, Deepti Majumdar, P. K. Banerjee

Defence Institute of Physiology and Allied Sciences, Lucknow Road, Delhi-110 054, India

Melatonin hormone is known to have sleep inducing properties. Disturbances in sleep and melatonin concentration and their daily rhythm have been reported in the over wintering members in Antarctica. A longitudinal study is being carried out on the six wintering members of 24 Indian Antarctic Expedition (IAE) at Maitri, the Indian Antarctica base to evaluate the seasonal variations in salivary melatonin concentration and its relation to sleep.

Melatonin levels were monitored for a period of 24 h at an interval of 2-4 h once every month from salivary samples by ELISA at Delhi and at Maitri between November 2004 and January 2006. Sleep data was also recorded during the same period for 3 consecutive days in each month with a 32 ch Polysomnograph.

No phase shift in the acrophase in the melatonin level was observed during the period of observation at Antarctica except in April and August. About 2 h phase advancement in melatonin level takes place in these two months. Melatonin rhythm showed free run during dark polar winter months. Correlation of melatonin levels with sleep events will be discussed.