20 - D. Pineal gland

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© SPMM Course o Continued failure to suppress cortisol despite the apparent recovery from depression suggests an increased risk for relapse, poor prognosis and possibly later suicidal behaviour.

D. Pineal gland The pineal gland is also called epiphysis. It contains pinealocytes that secrete both serotonin (in the day) and melatonin (in the night). The gland also contains calcium deposits that become more prominent with age (corpora arenacea or brain sand). The pineal gland contains the highest concentration of serotonin in the body. Melatonin is synthesized from serotonin by the action of serotonin-N-acetylase and 5-hydroxyindole-O-methyltransferase. The major regulator of melatonin synthesis is the light-dark cycle, with synthesis increased during darkness. The pineal gland is regulated by a major -adrenergic mechanism, and -antagonists such as propranolol decrease melatonin synthesis. Melatonin regulates circadian rhythms. It has both synchronizing and phase-shifting properties in the regulation of biological rhythms.

ENDOCRINE CHANGES & SLEEP

Start of sleep – increased testosterone Slow wave sleep – increased GH & SST; reduced cortisol REM sleep – reduced melatonin Early morning sleep – increased prolactin.

Circadian rhythm development in the first 1 month involves the emergence of the 24-hour core body temperature cycle; by 2 months progression of nocturnal sleeping is noted and in 3 months, melatonin and cortisol rhythms are established.

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