Medical Image of the Week: Cheyne-Stokes Respiration

Figure 1. Cheyne-Stokes Breathing pattern seen. The red arrow indicates the cycle time which is defined as the duration of the central apnea (or hypopnea) + the duration of a respiratory phase.

A 62 year-old male with a past medical history congestive heart failure, chronic obstructive pulmonary disease, and obesity with a body mass index of 38.02 kg/m^2 underwent an overnight polysomnogram for clinical suspicion for obstructive sleep apnea. He was found to have a periodic breathing as seen in the image above.

Cheyne-stokes respiration (CSR) is a type of periodic breathing characterized by crescendo-decrescendo pattern of respiration separated by central sleep apneas (CSA) or hypopneas (1). CSR-CSA may be seen in up to 15-37% of systolic heart failure patients (2,3). A longer cycle length, usually between 45-90 seconds, as well as the waxing and waning breathing pattern differentiate CSR from other forms of cyclic central apnea. CSA leads to chronically increased sympathetic activity and exerts multiple deleterious effects on the failing heart (2). The presence of CSR has been associated with higher mortality and rapid deterioration in cardiac function (4).

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References

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