3rd of 5 blogs over the next week, looking at Central Sleep Apnoea and guidelines and recommendations on identifying and reporting of CSA.

3. Implications of the current CSA guidelines and clinical practice – are new guidelines needed?

In 2012, the American Academy of Sleep Medicine (AASM) issued guidelines for treating Central Sleep Apnoea Syndromes (CSA) in adults. They suggested primary CSA be treated with positive airway pressure therapies such as CPAP, bilevel positive airway pressure, and adaptive servo-ventilation (evidence quality very low). Medications like zolpidem and triazolam could be considered if the patient lacks underlying risk factors for respiratory depression.

In cases of CSA linked to congestive heart failure (CHF), CPAP therapy was recommended as the initial treatment, (moderate quality evidence) indicating it can normalize the apnoea-hypopnea index and enhance ejection fraction. Acetazolamide and theophylline might be options if positive airway pressure isn't tolerated, after optimizing standard medical therapy.

For CSA related to end-stage renal disease, CPAP, supplemental oxygen, bicarbonate buffer use during dialysis, and nocturnal dialysis could be considered as treatment options, despite very low-quality evidence [1].

The guideline does not specifically mention central hypopneas.

<u>So, What about Updated Guidelines?</u>

Although not a guideline, in 2017 Randerath et al published a statement report on the results of a European Respiratory Society Task Force addressing actual diagnostic and therapeutic standards in central sleep disturbances during sleep. They made the following statements using grades A-D to support their results [2].

1) Nasal cannula is the best surrogate for hypopnea detection due to its good frequency response; thermistor is recommended for apnoea detection (A).

2) Respiratory Inductance Plethysmography (RIP) is reliable for respiratory event classification in routine settings; oesophageal manometry is reserved for research protocols (A).

3) Central hypopneas are very difficult to score, lacking specific obstructive characteristics. Polysomnography (PSG) may be necessary for definitive differentiation from obstructive hypopneas (A).

4) Evidence suggests that avoidable causes of CSA under PAP may include excessive titration, post-hyperventilation apnoea, post-arousal apnoea, overestimation due to split-night error and misclassification of central hypopneas (C).

5) Daytime hypercapnia is a hallmark of hypoventilation. Diagnostic indicators include FVC <50% and venous bicarbonate >27 mmol (A).

6) Classical PSG sensors combined with non-invasive surrogates like transcutaneous and end-tidal carbon dioxide estimate PaCO2, while thoracoabdominal bands, EMG, or PTT can assess respiratory effort (A).

A further very comprehensive review published in 2024 by Randerath et al, Central sleep apnoea: not just one phenotype, reflect the authors perspectives on CSA but not formal guidelines. The authors acknowledge with the influx of new research and forthcoming studies in CSA, there's a chance to utilise suitable methodologies for developing updated guidelines [3].

The French Consensus on Central Sleep Apnoea Syndrome (CSA) in adults. Part 1: Definitions and diagnostic procedures - Article in press is worthy of attention for sleep medicine clinicians. Particularly the following recommendations: [4].

Recommendation 21 Ventilation devices censoring central events and/or reports censoring central hypopneas should not be used in patients with central events at the initial diagnostic recording.

Recommendation 22 The central or obstructive characterisation of events by a CPAP device being inaccurate, especially for central hypopneas, it is recommended to validate by polygraphy or a polysomnography residual events under persistent CPAP.

Recommendation 24 To confirm the existence of an emerging CSA, it is recommended to meet all of the following criteria: • correction of obstructive events under CPAP confirmed by polygraphy or polysomnography under CPAP; • appearance or increase of a CSA IAH central = 5/h with a total number of apnoea's and/or central hypopneas >

50% total number apnoea's and hypopneas on a polygraphy or polysomnography under CPAP; • under continuous pressure in constant mode; • delay of 1 to 3 months after the implementation of the CPAP treatment; • etiological assessment carried out in accordance with this negative frame of reference.

Recommendation 25 Faced with sleep apnoea syndrome with coexistence of obstructive and central events, it is recommended:

• to specify the proportion of central and obstructive events in relation to the total number of respiratory events and describe their temporal distribution during the night;

• to specify the severity of each component;

• to carry out an aetiological assessment in search of factors favouring central events.

Recommendation 27 When mixed apnoea's represent at least 20% of total events, it is recommended to establish close monitoring of the patient after the implementation of CPAP in order to detect possible emerging CSA.

In the light of the recent French Consensus on Central Sleep Apnoea Syndrome (CSA) in adults (In Press), it will be interesting to see the responses to this consensus paper from the AASM, ERS and other International Sleep Medicine Societies.

References

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