

BPCO et Sommeil: le syndrome de chevauchement

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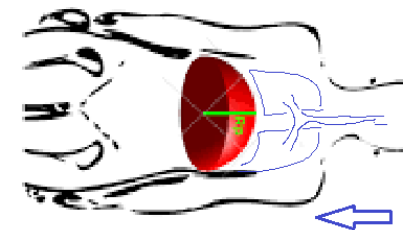
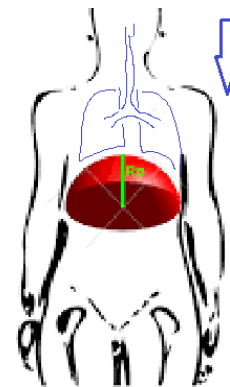
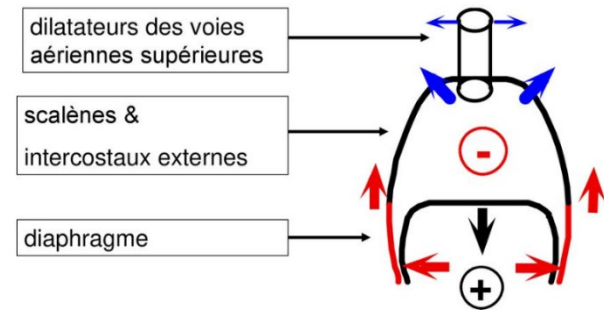
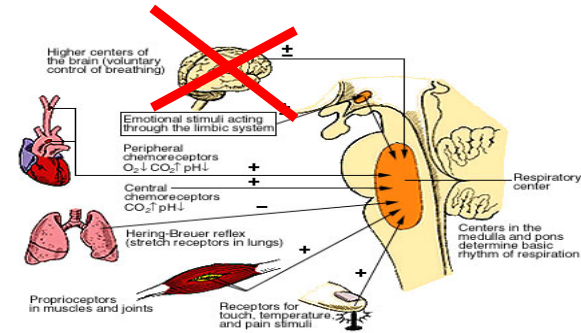


Liens d'intérêts

- Invitation à des congrès scientifiques: ASTEN

Impact du sommeil sur la respiration

- **Perte de contrôle volontaire de la Ventilation**
 - contrôle automatique par les centres respiratoires
- **Diminution de l'activité des centres respiratoires :**
 - ➔ réponse à l'hypercapnie et à l'hypoxie
- **Diminution de l'activité des muscles respiratoires:** SP > SL; intercostaux > diaphragme
- **Diminution de l'activité des muscles dilatateurs pharyngés** ⇒ augmentation de résistance des VAS
- **Diminution de la CRF (décubitus dorsal)**



Altération du sommeil chez les patients BPCO

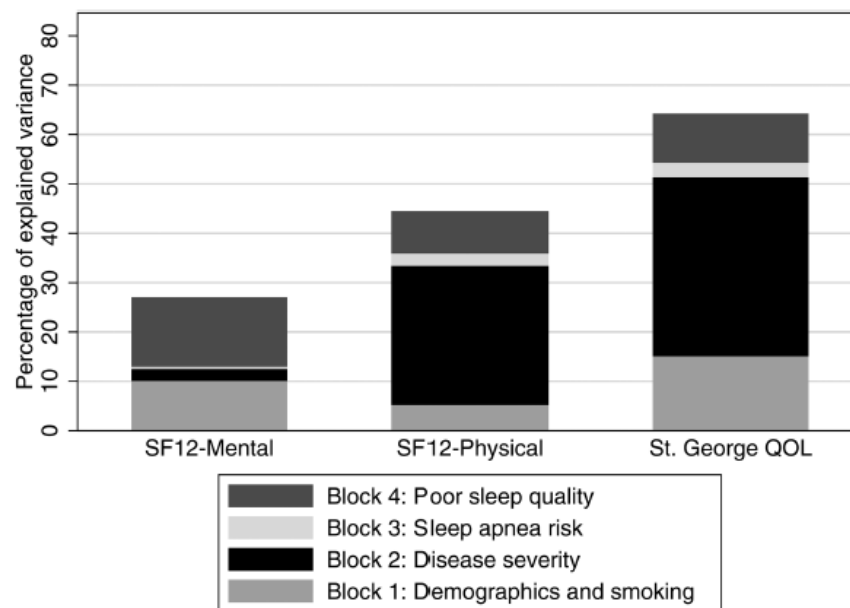
- Diminution de l'efficacité du sommeil
- Diminution du SP et du stade 3
- Allongement du stade 1
- Association entre PaO₂ (diurne) et efficacité du sommeil (pas le VEMS)

Sleep parameters

| | %TST (Mean ± SD) | %TST (mean (10th;90th percentile)) |
|-----------------------------------|----------------------|---------------------------------------|
| Stage 1 | 16.9 ± 14.3 | 4.1 [1.5;6.9] |
| Stage 2 | 54.7 ± 16.8 | 55.1 [43.5;66.9] |
| Stage 3/4 | 14.9 ± 15.0 | 19.4 [6.8;30.5] |
| Stage REM | 12.7 ± 8.3 | 21.4 [14.8;28.9] |
| TST (min) | 272.5 ± 86.6 | 372 [306;450] |
| Latency to persistent sleep (min) | 36.8 ± 33.9 | 19.4 [5.5;37.6] |
| Sleep efficiency (%) | 66 ± 17 | 86 [77;95] |
| Arousal index (n/h) | 16.2 ± 14.1 (n = 75) | 14.3 [7.5;23.3] |

Lien entre sommeil et QDV dans la BPCO

- 1341 patients BPCO cohorte SPIROMICS
- QDV
 - SF12 mental et physique
 - St George
- Qualité du sommeil
 - Pittsburg
- SAHOS
 - Score de Berlin
- Les troubles du sommeil impactent la QDV chez les patients BPCO



Mortalité nocturne des patients BPCO

Times of death of patients with chronic bronchitis and emphysema compared with two control groups. Figures are numbers of patients dying

| Diagnoses | 7 am-3 pm (day) | 3 pm-11 pm (evening) | 11 pm-7 am (night) |
|-------------------------------------|--------------------|-------------------------|-----------------------|
| Control groups: | | | |
| Non-respiratory neoplasms (n = 54) | 19 | 21 | 14 |
| Cerebrovascular disease (n = 54) | 16 | 21 | 17 |
| Bronchitis and emphysema (n = 54) | 11 | 17 | 26* |
| Type 1 respiratory failure (n = 17) | 3 | 8 | 6 |
| Type 2 respiratory failure (n = 24) | 6 | 3 | 15** |

Significance of difference in numbers of deaths from other time periods: * $p < 0.05$;
** $p < 0.01$.

BPCO et SAHOS: le syndrome de chevauchement

Prévalence des TRS chez les patients BPCO

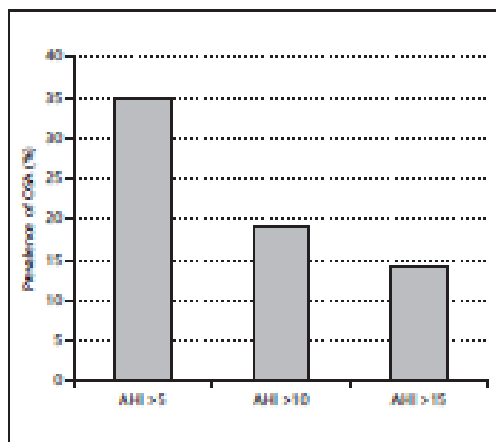


Fig. 2. Prevalence of OSA in the COPD cohort using different AHI events per hour thresholds.

Prévalence des SC en population générale

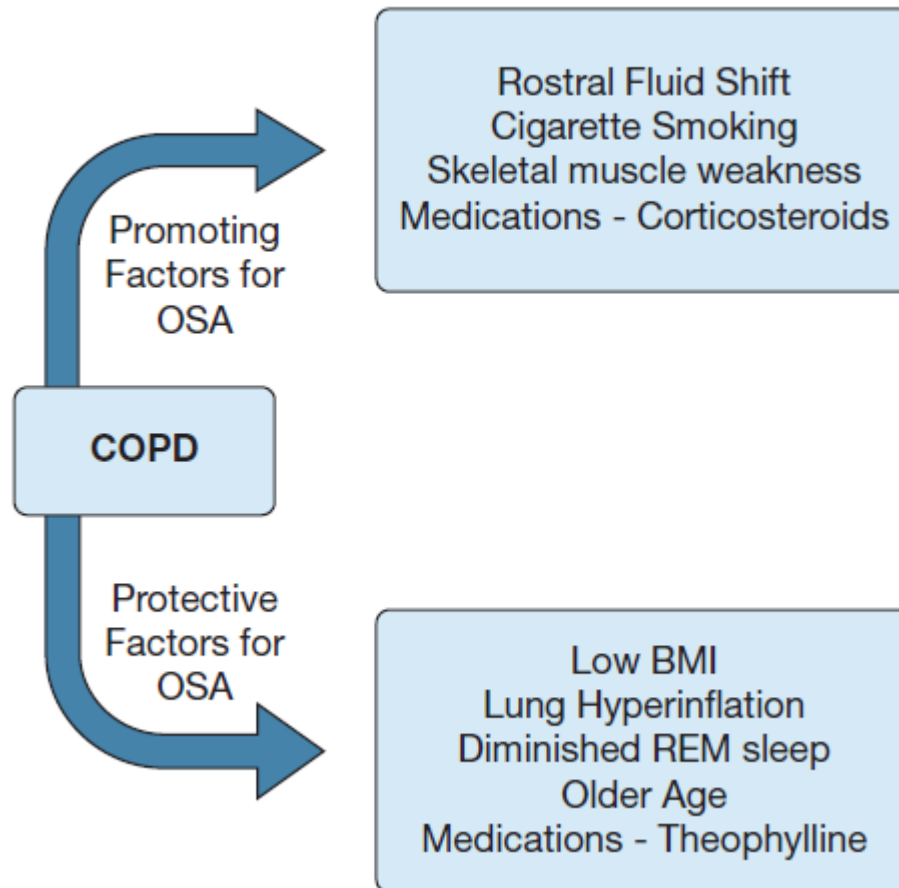
Table 1

Prevalence of overlap syndrome in general and hospital population.

| Authors, year, reference | Country | Sampling | Characteristics of study participants | COPD Dx/OSA Dx | AHI cut off per hour | Oxygen desaturation for hypopnea | Prevalence of COPD | Prevalence of OSA | Prevalence of overlap syndrome |
|-----------------------------|---------|--|---|--------------------------------------|----------------------|----------------------------------|--------------------|-------------------|--------------------------------|
| General population | | | | | | | | | |
| Azuma et al., 2014 [20] | Japan | Sample taken from an urban wholesale company (n = 303) | Mean age 43.9 ± 8.2 and all male | Spirometry/actigraph | AHI ≥ 5 | >3% | 6.3% | 59.7% | 3.6% |
| Bednarek et al., 2005 [18] | Poland | Random population sample (n = 676) | Age range was 41–72 y and 52% male | Spirometry/lab PSG | AHI > 5 | ≥2% | 10% | 11.7% | 1% |
| Sanders et al., 2003 [19] | USA | Random sample from sleep heart health study (n = 5954) | >40 y were included and mean age of 63 y; 47% male | Spirometry/unattended home PSG | AHI > 15 | ≥4% | 19.1% | 18% | 2.7% |
| Hospital population | | | | | | | | | |
| Ganga et al., 2013 [21] | USA | Consecutive elderly (≥65 y) in-patients (n = 2873) | Age range was 65–89 y | Treatment/sleep laboratory CPT codes | AHI > 5 | ≥3% | 15.5% | 3% | 1% |
| Stanchina et al., 2013 [22] | USA | Consecutive patients from outpatient department (n = 10,721) | Mean age of OSA = 61.6; COPD = 69 and overlap syndrome = 61.4 y | | | | 10.4% | 21.3% | 2.1% |

Abbreviations: AHI = apnea-hypopnea index; COPD = Chronic obstructive CPT = current procedural terminology; Dx = diagnosis; lab = laboratory; n = number of total participants; OSA = obstructive sleep apnea; PSG = polysomnography.

Impact physiopathologique de la BPCO sur les TRS



SC et comorbidités

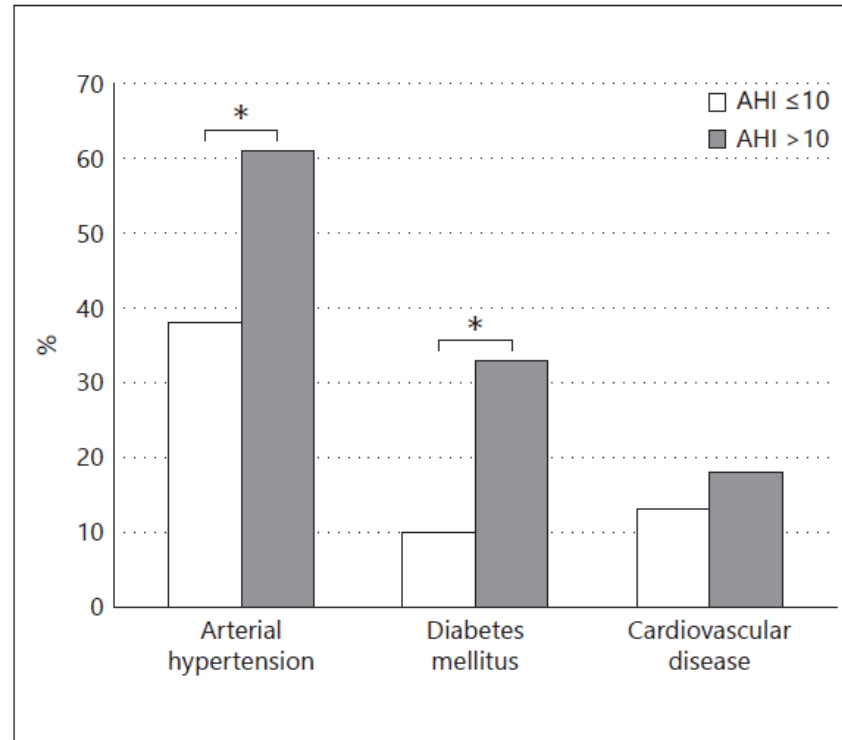
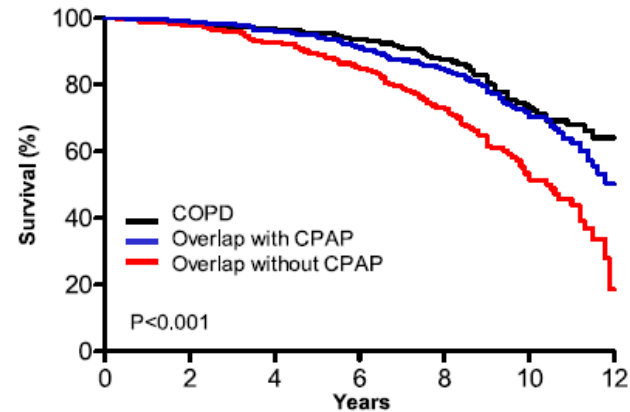


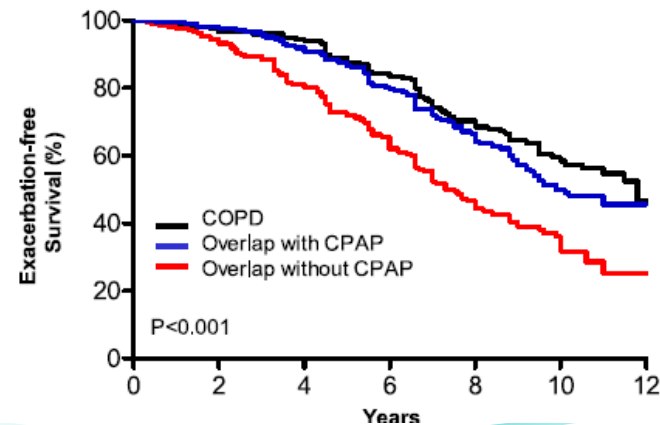
Fig. 3. Comorbidities in COPD with and without evidence for OSA. AHI thresholds represent events per hour. * $p < 0.05$.

Impact pronostique et du traitement par PPC

- Cohorte espagnole
 - Patients inclus pour suspicion de SAHOS
 - 228 patients overlap traités par PPC
 - 213 patients overlap non traités
 - 210 patients BPCO sans SAHOS
- Suivi 9,4 ans
- RR Overlap vs BPCO
 - 1,79 mortalité
 - 1,70 exacerbations

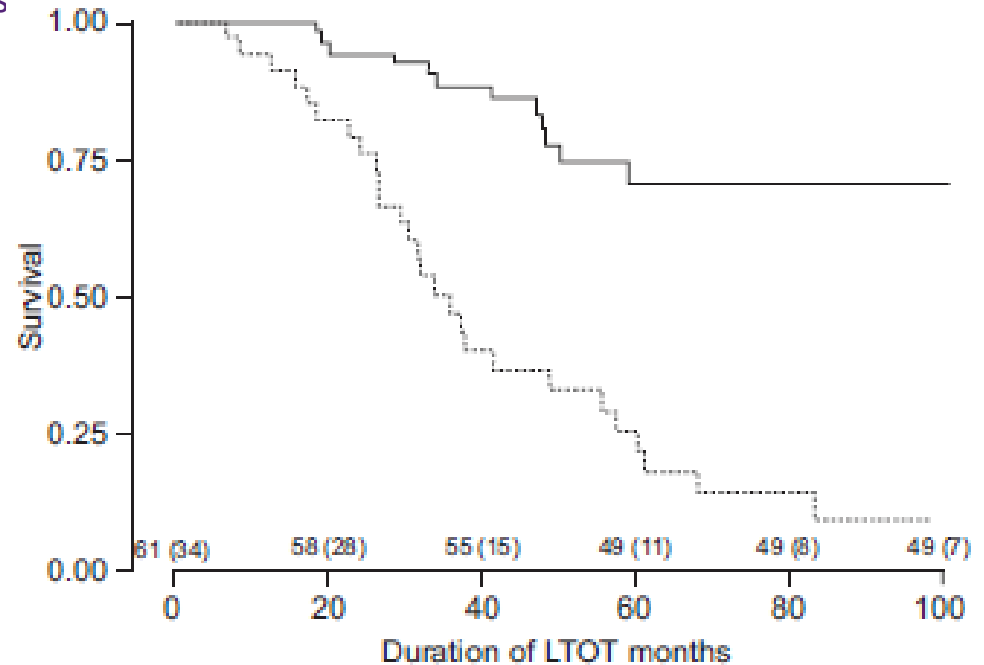


| No at risk | 0 | 2 | 4 | 6 | 8 | 10 | 12 |
|----------------------|-----|-----|-----|-----|-----|----|----|
| COPD | 210 | 203 | 196 | 184 | 144 | 89 | 10 |
| Overlap with CPAP | 228 | 223 | 215 | 201 | 167 | 97 | 8 |
| Overlap without CPAP | 213 | 204 | 186 | 161 | 121 | 57 | 3 |



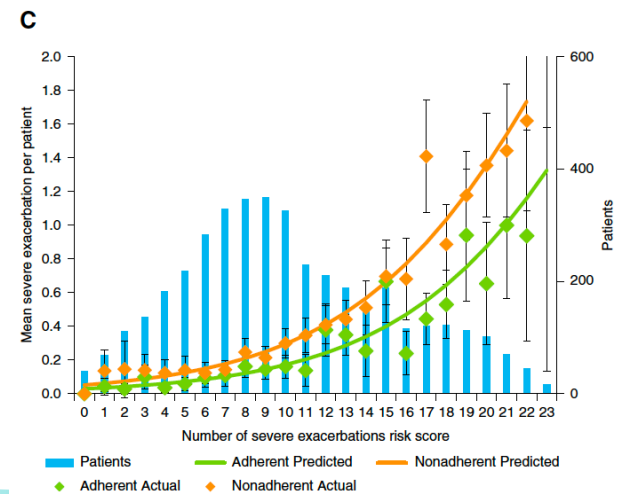
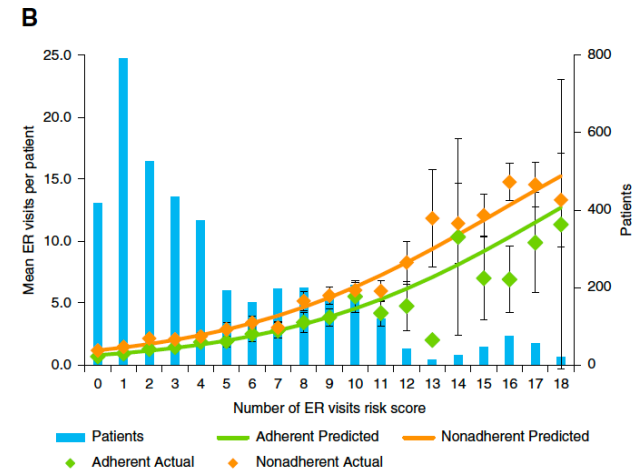
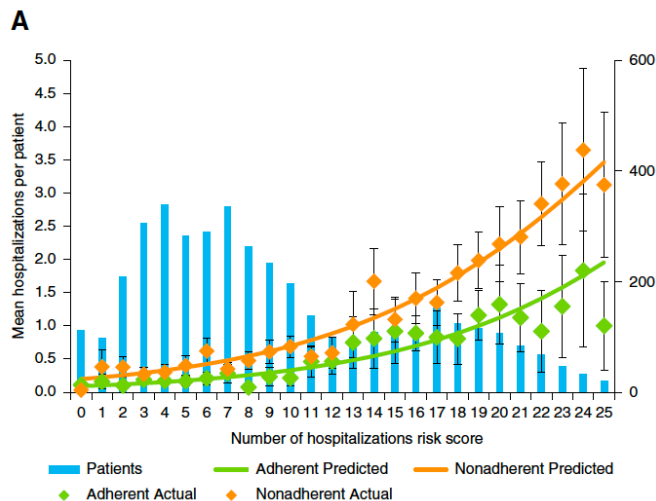
Impact pronostique et du traitement par PPC

- Cohorte brésilienne
 - Patients BPCO avec O2 au long cours
 - 61 patients overlap traités par PPC
 - 34 patients overlap non traités
- Suivi 5 ans
- RR PPC vs no PPC
 - 0,19 mortalité



Impact du traitement par PPC

- Travail sur les données de sécurité sociale (USA): identification des patients SC sous PPC.
- Appariement de ces patients avec une base de données avec mesure objective de l'observance.
- Objectif: évaluation de l'impact de l'observance de la PPC sur:
 - Hospitalisation toute cause
 - Hospitalisations SAU
 - EABPCO sévères



CONCLUSION

SOMMEIL et BPCO

- Les patients BPCO ont une qualité de sommeil altérée qui impacte leur qualité de vie et leur pronostic.

BPCO et SAHOS

- 2 pathologies fréquentes
 - 15% de la population adulte pour la BPCO
 - 10% pour le SAHOS
- La BPCO ne constitue pas un facteur de risque avéré de SAHOS
- Prévalence à 1 à 2%
- Comorbidités proches
 - Inflammation
 - Troubles métaboliques
 - Pathologie CV
- Impact positif de la PPC suggéré par toutes les études observationnelles
- Intérêt d'un dépistage plus large des TRS chez les patients BPCO

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