

# MORPHOSTATIC CORRELATES AND SLEEP APNEAS

CUGY Didier<sup>1,2</sup>; LAVAUD Eric<sup>3</sup>; PATY, Jacques<sup>2</sup>

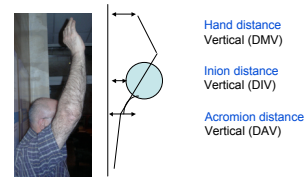
1. Pathologie du Sommeil, Bordeaux, France.
2. Clinique du Sommeil, CHU Pellegrin, Bordeaux, France.
3. Cabinet Kinésithérapie, Talence, Gironde, France.

## Introduction:

The clinical observation of patients suffering from OSAS reveals morphological similarities between patients. Even if a broad neck with a circumference higher than 42 cm has already been identified like a clinical factor (1), other Predicting Indicators have also been described (2,3). Moreover, these patients also present morphostatic similarities frequently characterized by a cervical ciphose and a rolling up of the shoulders. This morphostatic aspect can be easily quantified (the subject being at rest, his back positioned against a vertical plane) from the measurement of the distances separating the inion from the acromion to the vertical and the measurement of the distance hand-vertical (the subject being hands up).

## Materials and Methods:

Measurements of the distances inion vertical (DIV), acromion vertical (DAV), hands vertical (DMV) were linked to the results of 214 polysomnographies. The data reported to the indices of apnea, hypopneas, desaturations, saturation by stage of sleep were analyzed by regression and analysis of variance.



## Results:

Significant regression between DIV and IAH ( $p=2 \times 10^{-4}$ ); DAV and SpO2 (Stage one and two  $p=7,8 \times 10^{-3}$ ; REM  $p=1,1 \times 10^{-3}$ ); DMV and IAH ( $p=3,5 \times 10^{-2}$ ) was revealed.

**Coeff. de régression DMV sur IAH**

	Coefficient	Erreur standard	Coeff. standardisé	Valeur de F	Valeur de p
Terme est	0,2214	0,028	0,784	10,08	<0,001
DMV	-0,081	0,024	-0,333	6,02	<0,01

**Coeff. de régression DAV sur SpO2**

	Coefficient	Erreur standard	Coeff. standardisé	Valeur de F	Valeur de p
Terme est	-0,0011	0,0002	-0,523	10,08	<0,001
DAV	-0,0019	0,0004	-0,481	10,08	<0,001

**Coeff. de régression DMV sur IAH**

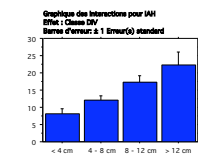
	Coefficient	Erreur standard	Coeff. standardisé	Valeur de F	Valeur de p
Terme est	0,0044	0,0011	0,401	10,08	<0,001
DMV	-0,002	0,0007	-0,282	3,24	<0,01

**Coeff. de régression DAV sur SpO2**

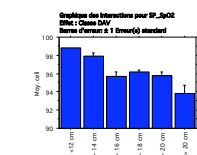
	Coefficient	Erreur standard	Coeff. standardisé	Valeur de F	Valeur de p
Terme est	-0,0011	0,0002	-0,523	10,08	<0,001
DAV	-0,0019	0,0004	-0,481	10,08	<0,001

Class regroupment and ANOVA tests between IAH; SpO2; DIV; DAV;DMV were also performed



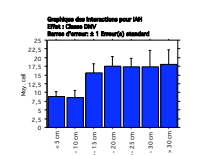
**Tableau ANOVA pour IAH**

	Terme est	Erreur standard	Coeff. standardisé	Valeur de F	Valeur de p	Signif.	Post-hoc
Classe DIV	0,001	0,0002	0,523	10,08	<0,001		
Erreur	0,001	0,0002					



**Tableau ANOVA pour SpO2**

	Terme est	Erreur standard	Coeff. standardisé	Valeur de F	Valeur de p	Signif.	Post-hoc
Classe DAV	-0,001	0,0002	-0,523	10,08	<0,001		
Erreur	0,001	0,0002					



**Tableau ANOVA pour IAH**

	Terme est	Erreur standard	Coeff. standardisé	Valeur de F	Valeur de p	Signif.	Post-hoc
Classe DMV	0,001	0,0002	0,523	10,08	<0,001		
Erreur	0,001	0,0002					

Cohen's Kappa Concordance test between Polygraphy (criterion IAH > 10/h) and measurement of Inion Vertical Distance (criterion DIV > 8 cm) give a poor but nonetheless significative value of 0.23. However, because of the simplicity of measurement of this parameter, it should be taken into account in the diagnostic tools of the respiratory events of sleep.

## Conclusion:

Morphostatic relations between measurement of the distances between Inion vertical, Acromion vertical, Hands Vertical and ventilatory parameters of sleep enable us to propose the use of these parameters to suspect ventilatory anomalies during sleep. In addition, the use of techniques of rehabilitation aiming at correcting these parameters in the caring of sleep respiratory pathologies can be considered.

## References:

1. Dixon J.B. & al. Predicting Sleep Apnoea and Excessive Day Sleepiness in Severely Obese : Indicators for polysomnography. Chest 2003;123;1134-1141
2. Joseph B & al, Physical findings and the risk of obstructive sleep apnea. Am J Resp Crit Care Med Vol 162 :pp 740-748, 2000
3. Skomro R.P. and Kryger H. Clinical Presentations of Obstructive Sleep Apnoea Syndrome. Cardiovascular Diseases, vol 41 N. 5 (March/April), 1999: pp 331-340

Annex - Rehabilitation protocol Project design :

- The work of assumption of responsibility kinesitherapeutic is spread out over 10 meetings it comprises in particular :
- an awakening of its own respiratory mode by the patient
  - an awakening of the various respiratory modes
  - an awakening of the diaphragmatic column and Air column
  - exercises aiming at increasing ventilatory amplitude