

# Pallesthesia asymetry : a new way to help diagnose of PLMS

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## Introduction :

Periodic Leg Movements during Sleep (PLMS) is one of the sleep movement disorders that can affect the quality of sleep. Diagnostic is actually based on the association of a complaint regarding limb movements during sleep and detection of a periodic limb activity during polysomnography. But some patients could present limb activity without complaint (no bed partner for example). So clinical diagnostic orientation is difficult.

## Objective :

The aim of our study is to find some subjective or objective criterias to help clinicians in diagnostic, like snoring, neck circumference, macroglossia or signs of upper airway obstruction in Sleep Apnea Syndrome.

## Material and Method :

Data is from a personal database, collected prospectively during sleep consultation since 2001. Stored data contain a systematic clinical examination including deep tendon reflexes, sensitivity with a measurement of vibration sense testing (pallesthesia since 2014), and sleep recording and diagnostics (ICSD/CIM10 coded). 399 records were fully completed and used for this study.



Pallesthesia is evaluated semi-quantitatively using a tuning fork at the ankles and wrists. The duration of perception of vibrations to the four points is recorded in the database. The barycenter of the four measurements is calculated to assess the homogeneity of the measurements.

Distribution of centroid values is analyzed to determine a threshold value above which it is considered that there is an asymmetry of perception and thus determine both groups (fig 1). Threshold values is calculated as providing the better discrimination between groups.

The groups are compared and determined by Khiz in groups with a syndrome of periodic movements of sleep.

## Results :

Threshold value is determined as a centroid value module higher than 3 sec (eq 12 sec asymmetry on one segment) .

Higher Module value is considered to have an pallesthesia asymetry. We found a significant association ( $p = 0.021$ ) between the presence of an asymetry of the pallesthesia and the presence of a syndrome of periodic

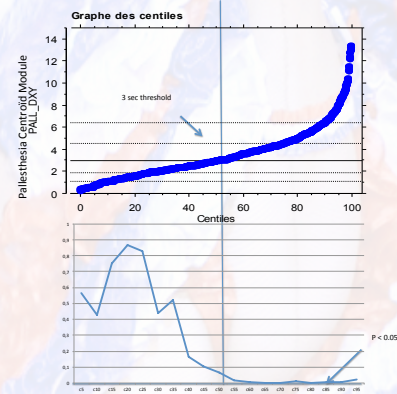


Fig 1 :distribution of centroid values module (top), threshold value calculation (bottom)

Tableau "résumé" pour MPS, PALL\_SEG

Manquants	7227		
DDL	1		
Chi 2	5,827		
p (Chi 2)	,0158		
G-carré	5,802		
p (G-carré)	,0160		
Coef. de contingence	,107		
Phi	,108		
Chi 2 corrigé	5,336		
p corrigé	,0209		
Prob. exacte de Fisher	,0168		
		Chi 2 des cellules pour MPS, PALL_SEG	
		POSITIF	NEGATIF
False	,801	,647	
True	2,422	1,957	

Fig 2 :Khiz results pallesthesia asymetry vs PLMS

## Conclusion :

Pallesthesia could be a new clinical sign to guide the diagnostic towards PLMS in patients who are consulting for a sleep disorder. Absolute or normalized values can be used. This results need to be confirmed.