

# BIBLIOGRAFÍA DEL INSTRUMENTO

## Cuestionario de la Escala de Somnolencia de Epworth (ESE)

Versión española de la Escala de Somnolencia de Epworth  
adaptada por M. Ferrer, J. Alonso y el Grupo de Estudio  
de la Apnea del Sueño de la SEPAR

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### **Bibliografía de la versión española de la Escala de Somnolencia de Epworth adaptada por M. Ferrer, J. Alonso y el Grupo de Estudio de la Apnea del Sueño de la SEPAR**

1. Ferrer M, Vilagut G, Monasterio C, Montserrat JM, Mayos M, Alonso J. Medida del impacto de los trastornos del sueño: las versiones españolas del cuestionario del impacto funcional del sueño y de la escala de somnolencia de Epworth. **Med Clin (Barc)** 1999;113:250-5.
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3. J. M. Montserrat, M. Ferrer, L. Hernandez, R. Farre, G. Vilagut, D. Navajas, J. R. Badia, E. Carrasco, J. de Pablo, and E. Ballester. Effectiveness of CPAP treatment in daytime function in sleep apnea syndrome: a randomized controlled study with an optimized placebo. **Am J Respir Crit Care Med** 164 (4):608-613, 2001.

### **Bibliografía de otras versiones españolas de la Escala de Somnolencia de Epworth**

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2. Peraíta-Adrados R, Ezpeleta D, Balas A, Vicario JL. Narcolepsy-cataplexy syndrome associated with DRB1\*0806-DQB\*0602 haplotype in a Caucasian patient. **Sleep Res Online** 1999;2:29-31.
3. Nunez R, Rey de Castro J, Socarras E, Calleja JM, Rubio R, Aizpuru F, Duran-Cantolla J. [Validation study of a polygraphic screening device (BREAS SC20) in the diagnosis of sleep apnea-hypopnea syndrome]. **Arch Bronconeumol** 2003;39:537-43.
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## Bibliografía relacionada con las versiones españolas de la Escala de Somnolencia de Epworth (ESE)

1. Ferrer M, Vilagut G, Monasterio C, Montserrat JM, Mayos M, Alonso J. Medida del impacto de los trastornos del sueño: las versiones españolas del cuestionario del impacto funcional del sueño y de la escala de somnolencia de Epworth. *Med Clin (Barc)* 1999;113:250-5

BACKGROUND: Excessive daytime sleepiness is a frequent symptom and a public health problem due to its association with automobile and work related accidents. The aim of this study was to develop and carry out a preliminary assessment of the Spanish version of the functional outcomes sleep questionnaire and the Epworth sleepiness scale, two instruments designed to evaluate patients with sleep disorders. MATERIAL AND METHODS: For the adaptation, the forward and back-translation method by bilinguals was used with professional and lay panel. Once tested for feasibility and comprehension, 39 patients with obstructive sleep apnea syndrome completed the Spanish version of the FOSQ and the Epworth sleepiness scale, together with a question on self-rated health status. RESULTS: Difficulty of translation was assessed as low and the naturalness of Spanish expressions as high for all the items of the questionnaires except for the response options of the Epworth sleepiness scale. Both questionnaires showed higher reliability than the standard proposed for individual comparisons (Cronbach's alpha > 0.9). The FOSQ vigilance scale showed a high correlation with the Epworth score ( $r = -0.79$ ), while for the other scales of the FOSQ correlations were moderate ( $r$  ranging from -0.52 to -0.68). Patients who reported "regular" or "poor" health had significantly worse scores for most of the FOSQ scales. CONCLUSION: These results suggest that the Spanish versions of both questionnaires are conceptually equivalent to the originals and that they show similar characteristics of reliability and validity. The FOSQ vigilante scale assess daytime sleepiness similarly to Epworth but the others scales of the FOSQ provide additional information for these patients.



2. Chiner E, Arriero JM, Signes-Costa J, Marco J, Fuentes I. [Validation of the Spanish version of the Epworth Sleepiness Scale in patients with a sleep apnea syndrome] *Arch Bronconeumol* 1999;35:422-7.

A Spanish version of the Epworth Sleepiness Scale (ESS-Sp) was developed by translation, back-translation, formal discussion, and a meeting of researchers with a group of patients with sleep apnea syndrome (SAS). The translated questionnaire was then tested in 345 patients, 275 with SAS at various levels of severity and 70 without SAS. Significant differences existed between the two groups as to age ( $53 \pm 11$  years versus  $47 \pm 13$ ,  $p < 0.001$ ) and BMI ( $32 \pm 5$  versus  $29.5 \pm 5$ ,  $p < 0.001$ ). Patients with SAS had significantly higher scores ( $14 \pm 5$ ) than did those without SAS ( $10 \pm 5$ ) ( $p < 0.001$ ). Reproducibility was tested in 146 patients (113 SAS and 33 non-SAS), with no significant differences found among patients with SAS ( $14.9 \pm 5$  versus  $14.2 \pm 5$ ,  $p = \text{n.s.}$ ); significant differences in BMI were found, however, among the 33 non-SAS patients ( $12 \pm 5$  versus  $10 \pm 5$ ,  $p < 0.01$ ). Total scores and individual item scores were related in both groups. Likewise, each item was related to total score in patients with SAS. Sensitivity to post-treatment changes was assessed in 77 SAS patients, with initial scores of  $16 \pm 4$  seen to decrease to  $4 \pm 3$  after continuous positive airway pressure. ESS-Sp scores over 10 were recorded for 85% of patients with SAS: 78% of those with mild SAS, 85% of those with moderate disease and 92% of those whose SAS was severe. Significant inter-group differences were found upon applying a test of variance ( $p < 0.001$ ). Differences continued to be detected when multiple correlations were looked for, with differences increasing with severity. SAS patients with ESS-Sp level one scores ( $< 10$ ) had lower apnea-hypopnea indices (AHI) ( $35 \pm 18$  versus  $42 \pm 20$ ,  $p < 0.05$ ), lower desaturation levels ( $21 \pm 21$  versus  $34 \pm 28$ ,  $p < 0.01$ ) and higher minimum saturation ( $80 \pm 10$  versus  $75 \pm 12$ ,  $p < 0.05$ ), with no differences in age or BMI. A significant correlation was found between ESS-Sp score and respiratory variables recorded during polysomnography: AHI,  $r = 0.23$  ( $p < 0.001$ ); percent time in apnea-hypopnea,  $r = 0.18$  ( $p < 0.01$ ); desaturation index,  $r = 0.27$  ( $p < 0.01$ ) and minimum saturation ( $r = -0.14$ ,  $p < 0.05$ ). We conclude that the Spanish version of the ESS is equivalent to the original, is reproducible in patients with SAS, sensitive to post-treatment changes and seems to discriminate level of severity, showing correlation with polysomnograph variables.

3. Peraita-Adrados R, Ezpeleta D, Balas A, Vicario JL. Narcolepsy-cataplexy syndrome associated with DRB1\*0806-DQB\*0602 haplotype in a Caucasian patient. *Sleep Res Online* 1999;2:29-31.

Narcolepsy-Cataplexy (NC) is a neurological disorder associated with the human leukocyte antigen HLA DR2. This is a prerequisite for the disease in 95 to 98% of Caucasian patients. It has been demonstrated that the HLA DQB1\*0602 allele is a better marker for narcolepsy than DRB1\*1501 (DR2). We present a DR-negative and DQB1\*0602-positive Caucasian Spanish patient with a very unusual genotype. A 20-year-old male presented with a 12-year history of excessive daytime sleepiness and sudden muscle weakness caused by laughter and disturbed nocturnal sleep. He had never presented hypnagogic hallucinations or sleep paralysis. The family history was negative. Physical and neurological examinations were normal. The Epworth Sleepiness Scale score was 21/24, The Ullanlinna Scale score was 20/40. The polysomnographic recording showed short sleep latency, increased percentage of stage 1 (St 1), increased number of body movements and decreased sleep efficiency index. MSLT data: mean sleep latency of 1 minute and three sleep onset rapid eye movement (REM) periods (SOREMPs). HLA phenotype: A1, A11; Cw5, Cw7; B44, B39; Bw4, Bw6; DR4, DR8; DR53; DQ6, DQ8 and at the gene level: DRB1\*0402, DQB1\*0302; DRB1\*0806, DQB1\*0602. The DRB1\*0806 and DQB1\*0602 genotype is very infrequent in NC and identical to one African-American case in the series by Mignot et al. (1997a), and to a Caucasian case in another series by Mignot et al. (1997b). This indicates the genetic heterogeneity of the NC.

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**BACKGROUND:** The sleep apnea-hypopnea syndrome is defined by a pathologic number of respiratory events during sleep (the apnea-hypopnea index, defined as the number of apnea and hypopnea episodes per hour) and daytime symptoms (mostly, excessive sleepiness). In patients with the sleep apnea syndrome, treatment with continuous positive airway pressure (CPAP) normalizes both the apnea-hypopnea index and diurnal symptoms. However, the effect of CPAP in persons with a pathologic apnea-hypopnea index without daytime sleepiness is unclear. **OBJECTIVE:** To investigate the short-term effects of CPAP on quality of life, objective sleepiness, cognitive function, and arterial blood pressure in nonsleepy patients with a pathologic apnea-hypopnea index. **DESIGN:** Multicenter randomized, placebo-controlled, parallel-group study. **SETTING:** Six teaching hospitals in Spain. **PATIENTS:** 55 patients with an apnea-hypopnea index of 30 or greater who did not have daytime sleepiness (Epworth Sleepiness Scale score  $\leq 10$ ). **INTERVENTION:** Patients were randomly assigned to receive optimal ( $n = 29$ ) or sham ( $n = 25$ ) CPAP and were observed for 6 weeks. **MEASUREMENTS:** Quality of life, objective sleepiness (Multiple Sleep Latency Test score), cognitive function, and arterial blood pressure. **RESULTS:** The intervention and control groups were similar in terms of mean ( $\pm$ SE) age ( $54 \pm 2$  vs.  $52 \pm 2$  years), apnea-hypopnea index ( $54 \pm 3$  vs.  $57 \pm 4$ ), Epworth Sleepiness Scale score ( $7.0 \pm 0.4$  vs.  $7.0 \pm 0.4$ ) and adherence to CPAP treatment ( $5.0 \pm 0.4$  vs.  $4.0 \pm 0.5$  hours/d). Other variables, such as quality of life, cognitive function, and arterial blood pressure, were also similar in both groups before treatment. After 6 weeks of CPAP or sham CPAP, none of these variables changed significantly. **CONCLUSION:** In patients with an apnea-hypopnea index of 30 or greater and no subjective daytime sleepiness, CPAP does not modify quality of life, objective sleepiness, vigilance, attention, memory, information processing, visuomotor coordination, or arterial blood pressure. Treatment with CPAP is therefore not indicated in nonsleepy patients with a pathologic apnea-hypopnea index.



5. Nunez R, Rey de Castro J, Socarras E, Calleja JM, Rubio R, Aizpuru F, Duran-Cantolla J. [Validation study of a polygraphic screening device (BREAS SC20) in the diagnosis of sleep apnea-hypopnea syndrome]. *Arch Bronconeumol* 2003;39:537-43.

**OBJECTIVE:** To validate the BREAS SC20 (Breas Medical AB, Molnlycke, Sweden) polygraphic screening device, comparing it with conventional polysomnography (PSG), in the diagnosis of sleep apnea-hypopnea syndrome. A validity study of the diagnostic test was carried out at the sleep clinic of a tertiary hospital. **PATIENTS AND METHODS:** Seventy patients clinically suspected of sleep apnea-hypopnea syndrome and treated at the sleep laboratory of the Hospital Txagorritxu, Vitoria, Spain, from November, 2001 until August, 2002 were consecutively enrolled in the study. Patient characteristics, comorbidities, and results on the Epworth sleepiness scale were recorded. The apnea-hypopnea index (AHI) per hour of sleep was determined by PSG; the respiratory events index (REI) per hour of screening was determined by the polygraphic screening device. **RESULTS:** Sixty studies were valid (77% were men; mean [SD] age: 51.6 [13.2]; body mass index: 30.3 [5]; AHI: 31.0 [27.6]). The intraclass correlation coefficient between the AHI by PSG and the manual REI was 0.92. The mean difference between the AHI and the manual REI was 2.92 (9.75). The area under the receiver operating characteristic curve was 0.924 for the cut point AHI  $\geq 5$ . The optimal cut point for an AHI  $\geq 5$  was 3.6 in the REI (98% sensitivity). The respiratory screening device correctly classified 90% to 95% of the patients. **CONCLUSIONS:** The BREAS SC20 is a valid system for identifying patients clinically suspected of sleep apnea-hypopnea syndrome.

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Standard practice for continuous positive airway pressure (CPAP) treatment in sleep apnea and hypopnea syndrome (SAHS) requires pressure titration during attended laboratory polysomnography. However, polysomnographic titration is expensive and time-consuming. The aim of this study was to ascertain, in a large sample of CPAP-naïve patients, whether CPAP titration performed by an unattended domiciliary autoadjusted CPAP device or with a predicted formula was as effective as CPAP titration performed by full polysomnography. The main outcomes were the apnea-hypopnea index and the subjective daytime sleepiness. We included 360 patients with SAHS requiring CPAP treatment. Patients were randomly allocated into three groups: standard, autoadjusted, and predicted formula titration with domiciliary adjustment. The follow-up period was 12 weeks. With CPAP treatment, the improvement in subjective sleepiness and apnea-hypopnea index was very similar in the three groups. There were no differences in the objective compliance of CPAP treatment and in the dropout rate of the three groups at the end of the follow-up. Autoadjusted titration at home and predicted formula titration with domiciliary adjustment can replace standard titration. These procedures could lead to considerable savings in cost and to significant reductions in the waiting list. San Pedro de Alcantara Hospital, Caceres, Spain. [fmasa@separ.es](mailto:fmasa@separ.es).

7. Barbe F, Mayoralas LR, Duran J, Masa JF, Maimo A, Montserrat JM, Monasterio C, Bosch M, Lalaria A, Rubio M, Rubio R, Medinas M, Hernandez L, Vidal S, Douglas NJ, Agusti AG. Treatment with continuous positive airway pressure is not effective in patients with sleep apnea but no daytime sleepiness. a randomized, controlled trial. *Ann Intern Med*. 2001 Jun 5;134(11):1015-23.

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