DOI:10.11798/j.issn.1007-1520.201805006

·阻塞性睡眠呼吸暂停低通气综合征专栏·

小 REM 期阻塞性睡眠呼吸暂停低通气综合征患者的临床特点及意义

陈　曦,余蕾蕾,章　榕,李进让

(海军总医院 耳鼻咽喉头颈外科,北京　100048)

摘　要:　目的　探讨小 REM(little REM sleep,REM <20%)期阻塞性睡眠呼吸暂停低通气综合征(obstructive sleep apnea hypopnea syndrome,OSAHS)患者的临床特点及意义。**方法**　回顾性分析经多导睡眠监测(PSG)确诊的 717 例 OSAHS 患者,按 REM (rapid eyes movement)期占总睡眠时间百分比将其分为 A 组 522 例(REM <20% 组)和 B 组 195 例(REM ≥20% 组),分别对各组年龄、体重指数(body mass index, BMI)、睡眠呼吸暂停低通气指数(apnea hypopnea index, AHI)、呼吸暂停指数(apnea index, AI)、低通气指数(hypopnea index, HI)、最低血氧饱和度(the lowest oxygen saturation,$LSaO_2$)、氧减指数 (desaturation index, DI)、微觉醒指数(micro-arousal index, MAI)进行比较。对引起小 REM 期的各参数进行二值 Logistic 回归分析。**结果**　两组间年龄经比较无统计学意义($P>0.05$),其余各参数 BMI、AI、HI、AHI、$LSaO_2$、DI、MAI 等 A 组均明显高于 B 组,logistic 回归分析中显示,$LSaO_2$($P=0.026$, $OR=1.038$,95% CI[1.005 – 1.073])、DI ($P=0.047$,$OR=1.037$,95% CI[1.000 – 1.075])、MAI($P=0.000$,$OR=0.887$,95% CI [0.833 – 0.943])经比较均具有统计学意义(P 均 <0.05)。**结论**　小 REM 期 OSAHS 患者病情明显较正常 REM 期患者严重,反复低氧血症和觉醒是导致小 REM 期的主要原因。

关　键　词:小 REM 睡眠;阻塞性睡眠呼吸暂停低通气综合征

中图分类号:R766.4　　**文献标识码:**A　　[中国耳鼻咽喉颅底外科杂志,2018,24(5):417 – 419]

Clinical characteristics and significance of obstructive sleep apnea hypopnea syndrome during little REM Sleep

CHEN Xi, YU Lei-lei, ZHANG Rong, LI Jing-rang

(*Department of Otolaryngology-Head and Neck Surgery*, *Navy General Hospital*, *Beijing* 100048, *China*)

Abstract:　Objective　To investigate the clinical features of patients suffering from obstructive sleep apnea hypopnea syndrome (OSAHS) during little rapid eye movement (REM) sleep, and explore the significance of little REM sleep. **Methods**　Clinical data of 717 patients suffering from OSAHS confirmed with polysomnography (PSG) were analyzed retrospectively. According to the percentage of the REM sleep from the total, all the patients were divided into 2 groups: group A (REM <20%, $n=522$) and group B (REM ≥20%, $n=195$). The parameters including patients´age, body mass index (BMI), apnea hypopnea index (AHI), apnea index (AI), hypopnea index (HI), the lowest oxygen saturation ($LSaO_2$), desaturation index (DI), and micro-arousal index (MAI) were compared between the two groups, respectively. A binary logistic regression analysis was made to investigate the parameters inducing little REM sleep in OSAHS. **Results**　There was no significant difference in patients´age between the two groups ($P>0.05$). The values of BMI, AI, HI, AHI, $LSaO_2$, DI and MAI in group A were higher than those in group B, and the differences were all statistically significant (all $P<0.05$). The binary logistic regression analysis revealed statistical differences in $LSaO_2$ ($P=0.026$, $OR=1.038$, 95% CI [1.005 – 1.073]), DI ($P=0.047$, $OR=1.037$, 95% CI[1.000 – 1.075]), MAI($P=0.000$,$OR=0.887$,95% CI[0.833 – 0.943]) between the two groups. **Conclusions**　The OSAHS condition in patients during little REM sleep is more serious than that during normal REM sleep. The main causes of little REM sleep in OSAHS are recurrent hypoxia and arousal.

Key words:little REM sleep;Obstructive sleep apnea hypopnea syndrome

[Chinese Journal of Otorhinolaryngology-Skull Base Surgery,2018,24(5):417 – 419]

基金项目:海军总医院院内课题(CXPY201707)。
作者简介:陈　曦,男,副主任医师。
通信作者:陈　曦,Email:xhcxyz@126.com

阻塞性睡眠呼吸暂停低通气综合征(obstructive sleep apnea hypopnea syndrome,OSAHS)是常见的睡

眠疾病,但病因不明,临床上除按睡眠呼吸暂停低通气指数(apnea hypopnea index, AHI)区分病情轻重外,各研究机构还从不同角度进行患者分类研究,如REM相关的OSAHS患者[1-2],体位依赖的OSAHS患者[3]等。最近有学者开始关注小REM期睡眠(little REM sleep,REM<20%)问题[4],但相关研究报道极少,有必要进一步研究。

1 资料和方法

1.1 研究对象

2016年7月~2017年12月,在我科睡眠中心共开展睡眠监测1323例次,其中有临床症状、经多导睡眠监测证实符合OSAHS诊断标准[5]并有详细临床资料的成人患者共717例,其中男662例,女55例;年龄18~71岁,平均年龄(43.86±11.32)岁;疗程1.5~12年,平均(3.57±1.32)年。

1.2 研究方法

将患者按REM(rapid eyes movement)期占总睡眠时间百分比分为两组,即A组522例(REM<20%组即小REM组)和B组195例(REM≥20%组)。717例患者中,中度OSAHS患者140例,92例(65.71%)为小REM期者;重度OSAHS患者403例,321例(79.66%)为小REM期者;轻度OSAHS患者174例,109例(62.64%)为小REM期者。分别对两组年龄、体重指数(body mass index, BMI)、睡眠呼吸暂停低通气指数(apnea hypopnea index, AHI)、呼吸暂停指数(apnea index, AI)、低通气指数(hypopnea index, HI)、最低血氧饱和度(the lowest oxygen saturation,$LSaO_2$)、氧减指数(desaturation index, DI)、微觉醒指数(micro-arousal index, MAI)进行比较。

1.3 统计学方法

采用SPSS16 for Windows进行统计学分析,检测数据以$\bar{x}\pm s$表示,计量资料采用非参数Mann-Whitney U检验,对REM<20%的各相关参数进行二值Logistic回归分析。$P<0.05$表示差异具有统计学意义。

2 结果

2.1 两组各临床参数比较

两组各参数比较见表1,主要参数如BMI、AI、HI、AHI、$LSaO_2$、DI、MAI等A组均明显高于B组($P<0.05$)。

2.2 危险因素回归分析

表2中二值Logistic回归分析显示,$LSaO_2$($P=0.026$,$OR=1.038$,95% CI[1.005,1.073])、DI($P=0.047$,$OR=1.037$,95% CI[1.000,1.075])、MAI($P=0.000$,$OR=0.887$,95% CI[0.833,0.943])具有统计学差异,与REM百分比小于20%有明确相关性。AI、HI、AHI无统计学差异。

表1 两组各临床参数比较结果($\bar{x}\pm s$)

参数	A组($n=522$)	B组($n=195$)	U	P
年龄(岁)	44.78±11.94	42.29±1.27	2.12E4	0.064
体重指数(kg/cm^3)	28.68±3.91	27.75±3.33	2.078E4	0.034
最长呼吸暂停时间(s)	57.31±27.34	52.24±24.91	21207.00	0.069
最长低通气时间(s)	45.63±19.20	45.37±15.75	23133.5	0.697
呼吸暂停指数(次/h)	30.45±26.96	24.24±28.89	2.01E4	0.009
低通气指数(次/h)	13.51±11.20	10.53±8.61	1.998E4	0.007
AHI(次/h)	43.78±27.82	33.19±26.16	1.82E4	0.000
$LSaO_2$(%)	71.71±13.34	74.24±12.93	2.10E4	0.050
氧减指数(次/h)	43.42±26.79	32.32±25.22	1.78E4	0.000
微觉醒指数(次/h)	16.74±18.09	11.77±1.76	16433.0	0.000

注:$P<0.05$为差异具有显著性意义

表2 二值Logistic回归分析

参数	OR	P	95% CI
体重指数	1.073	0.061	0.997-1.154
最长呼吸暂停时间	1.009	0.167	0.996-1.023
最长低通气时间	0.997	0.657	0.984-1.010
呼吸暂停指数	0.978	0.417	0.926-1.033
低通气指数	0.983	0.793	0.868-1.115
AHI	1.043	0.114	0.990-1.099
$LSaO_2$	1.038	0.026	1.005-1.073
氧减指数	1.037	0.047	1.000-1.075
微觉醒指数	0.887	0.000	0.833-0.943

注:$P<0.05$为差异具有显著性意义

3 讨论

成人正常REM期占总睡眠时间是20%~25%,REM期具有心率加快、血压升高、肌肉松弛、眼球不停摆动等特点,REM睡眠时间剥夺可造成认知能力受损,情绪障碍等[6-7],甚至影响人类空间导航能力[8]等严重后果。

本研究显示,小REM期组患者病情严重程度明显高于正常REM期组,与以往研究一致[4]。从危险因素看,小REM与最低血氧饱和度、氧减指数和觉醒指数有关,而与AI、HI、AHI无关。结合本研究其他数据,重度OSAHS患者中有20%(82/403)患者有正常REM期。中度OSAHS患者34.29%(48/

140)有正常 REM 期。说明临床常用于评估病情严重程度的 AI、HI、AHI 等指数存在一定缺陷,这些指数只代表单位时间内出现的呼吸事件次数,但具体到一个患者即使频发呼吸事件,但如果以低通气为主,每次呼吸事件时间很短,或患者耐受缺氧能力很强,都有可能使血氧饱和下降并不大,并不促发微觉醒等事件,从而患者的睡眠结构基本正常。这一定程度上解释了许多患者 AHI 指数相同,但临床症状、并发症等差异却很大的原因。

引发微觉醒的因素有疼痛、接触、缺氧、气道内压力变化等[9]。微觉醒对睡眠的影响存在双重性。一方面微觉醒即可引起吸气运动神经元兴奋,进而加强咽部扩张肌兴奋性,从而开放气道终止呼吸事件[10]。Dyken 等[11]研究发现,当出现长时间上气道阻塞,并引起明显血气紊乱时,微觉醒作为最后一道防线,来开放气道,防止窒息等严重并发症的发生。但另一方面,频繁微觉醒可导致睡眠片断过多,深睡眠减少[12-13],以上结论与本研究一致,引起小 REM 期的危险因素是最低血氧饱和度、氧减指数和觉醒指数,均直接或间接导致 REM 期缩短。

小 REM 期患者的研究具有一定的临床意义,重度 OSAHS 患者多采用持续正压通气(CPAP)治疗,但许多患者并不耐受 CPAP[14]。目前有学者研究发现,小 REM 期患者行 CPAP 压力测定的成功率显著低于正常 REM 期患者[4],但深入研究的文章很少。本课题今后进一步研究方向是小 REM 期患者对 CPAP 治疗的影响,以及对腭咽成形、硬腭截短等手术疗效的影响等。

总之,小 REM 期 OSAHS 患者病情明显较正常 REM 期 OSAHS 患者严重,反复低氧血症和微觉醒是导致小 REM 期的主要原因。

参考文献:

[1] 陈曦,孙玉梅,孙建军. OSAHS 呼吸事件发生与睡眠时相、体位的关系[J]. 临床耳鼻咽喉头颈外科杂志,2012, 26(17):774 - 776.
Chen X, Sun YM, Sun JJ. Study of the relationship between sleep body posture, sleep phase and severity of obstructive sleep apnea-hypopnea syndrome[J]. Journal of Clinical Otolaryngology Head and Neck Surgery, 2012, 26(17):774 - 776.

[2] Khan A, Harrison SL, Kezirian EJ, et al. Obstructive sleep apnea during rapid eye movement sleep, daytime sleepiness, and quality of life in older men in osteoporotic fractures in men (MrOS) sleep study[J]. J Clin Sleep Med, 2013, 9(3):191 - 198.

[3] Mo JH, Lee CH, Rhee CS, et al. Positional dependency in Asian patients with obstructive sleep apnea and its implication for hypertension[J]. Arch Otolaryngol Head Neck Surg, 2011, 137(8):786 - 790.

[4] Koo DL, Nam H. Clinical considerations of obstructive sleep apnea with little REM sleep[J]. J Clin Neurol, 2016, 12(4):426 - 433.

[5] 中华耳鼻咽喉头颈外科杂志编辑委员会,中华医学会耳鼻咽喉头颈外科学分会咽喉学组. 阻塞性睡眠呼吸暂停低通气综合征诊断和外科治疗指南[J]. 中华耳鼻咽喉头颈外科杂志,2009, 44(2):95 - 96.
Editorial Committee of China Journal of Otorhinolaryngology Head and Neck Surgery, Subspecialty Group of Pharyngolaryngology, Society of Otorhinolaryngology Head and Neck Surgery, Chinese Medical Association. Clinical practice guideline for the diagnosis and surgical treatment of obstructive sleep apnea hypopnea syndrome[J]. Chinese Journal of Otorhinolaryngology Head and Neck Surgery, 2009, 44(2):95 - 96.

[6] Kreutzmann JC, Havekes R, Abel T, et al. Sleep deprivation and hippocampal vulnerability: changes in neuronal plasticity, neurogenesis and cognitive function[J]. Neuroscience, 2015, 309:173 - 190.

[7] Korf J, Bosker F. The depressed patient in a biological world: on philosophical and diagnostic strategies[J]. J Eval Clin Pract, 2013, 19(3):514 - 521.

[8] Varga AW, Kishi K, Mantua J, et al. Apnea-induced rapid eye movement sleep disruption impairs human spatial navigational memory[J]. J Neurosci, 2014, 34(44): 14571 - 14577.

[9] Berry RB, Gleeson K. Respiratory arousal from sleep: mechanisms and significance[J]. Sleep, 1997, 20(8): 654 - 675.

[10] Jordan AS, Eckert DJ, Wellman A, et al. Termination of respiratory events with and without cortical arousal in obstructive sleep apnea[J]. Am J Respir Crit Care Med, 2011, 184(10): 1183 - 1191.

[11] Dyken ME, Yamada T, Glenn CL, et al. Obstructive sleep apnea associated with cerebral hypoxemia and death[J]. Neurology, 2004, 62(3): 491 - 493.

[12] Ratnavadivel R, Chau N, Stadler D, et al. Marked reduction in obstructive sleep apnea severity in slow wave sleep[J]. J Clin Sleep Med, 2009, 5(6):519 - 524.

[13] 陈曦,章榕,王洪洪,等. Epworth 嗜睡量表和微觉醒指数在重度 OSAHS 患者病情评估中的价值[J]. 临床耳鼻咽喉头颈外科杂志. 2017, 31(3):167 - 169.
Chen X, Zhang R, Wang HH, et al. The assessed value of Epworth sleep scale and arousal index in severe OSAHS patients[J]. Journal of Clinical Otolaryngology Head and Neck Surgery, 2017, 31(3):167 - 169.

[14] 王妍娣,丁艳红,邓邦鱼,等. 阻塞性睡眠呼吸暂停低通气综合征患者实施持续正压通气治疗依从性的影响因素分析[J]. 中国耳鼻咽喉颅底外科杂志,2014, 20(5):440 - 443.
Wang YD, Ding YH, Deng BY, et al. Influencing factors on compliance of patients with obstructive sleep apnea hypopnea syndrome treated with coutinuous positive airway pressure[J]. Chinese Journal Otorhinolaryngology-Skull Base Surgery, 2014, 20(5):440 - 443.

(收稿日期:2018 - 05 - 03)