

Background

- In vasculitis, several factors could contribute to a higher risk of sleep disturbances, such as use of glucocorticoids (GCs) or upper airway involvement
- Sleep disturbances impair health-related quality of life and increase risk of cardiovascular disease and mental illness

Objective

To describe the types of sleep disturbances and their prevalence among patients with vasculitis

Methods

- A cross-sectional survey administered February 1 - April 1, 2023, to patients registered in the Vasculitis Patient-Powered Research Network (VPPRN)
- Survey included:
 - Epworth Sleepiness Scale (ESS, range 0-24, <10 normal)
 - Functional Outcomes of Sleep Questionnaire-10 (FOSQ-10, range 5-20, higher scores indicate better function)
 - Multivariable Apnea Prediction Index (MVAP, range 0-1, 1 indicates highest risk for obstructive sleep apnea (OSA))
- Participants provided data on demographics, previously diagnosed sleep disorders, characteristics of their vasculitis, and medications

Sleep disturbances by sex and prednisone-equivalent glucocorticoid doses

	Total	Male	Female	p-value	Prednisone or other glucocorticoids in mg/day				p-value
					0	> 0 to 10	11 to 39	> 40	
Sample size, n (%)					658 (63.0)	316 (30.3)	57 (5.5)	10 (1.0)	<.001
Gender, female, n (%)	1104	280 (25.4)	821 (74.6)	<.0001	491 (74.6)	225 (71.2)	43 (75.4)	10 (100.0)	0.26
Age, mean (SD)	59.5 (13.6)	62.7 (12.5)	58.5 (13.8)	<.0001	60.0 (13.5)	60.4 (13.3)	54.5 (13.8)	48.4 (7.1)	0.001
Race group, White, n (%)	1005 (91.0)	249 (88.9)	756 (92.1)	0.18	600 (91.2)	291 (92.1)	50 (87.7)	10 (100.0)	0.86
Disease duration, years, mean (SD)	9.7 (8.4)	10.6 (8.8)	9.5 (8.2)	0.02	9.8 (8.0)	10.2 (9.1)	7.9 (10.3)	6.9 (6.8)	0.007
Body mass index, kg/m², mean (SD)	28.3 (7.4)	27.4 (6.0)	28.6 (7.9)	0.33	28.0 (7.3)	28.5 (7.5)	29.4 (8.7)	30.1 (7.2)	0.39
Type of vasculitis, n (%)				<.0001					0.005
Large-vessel Vasculitis	132 (12.0)	11 (3.9)	121 (14.7)		63 (9.6)	42 (13.3)	16 (28.1)	0	
ANCA vasculitis	737 (66.8)	225 (80.4)	511 (62.2)		443 (67.3)	220 (69.6)	31 (54.4)	9 (90.0)	
Others	235 (21.3)	44 (15.7)	189 (23.0)		152 (23.1)	54 (17.1)	10 (17.5)	1 (10.0)	
Epworth sleepiness scale									
Median (IQR)	7.0 (7.0)	6.0 (6.0)	7.0 (7.0)	0.01	7.0 (6.0)	7.0 (7.0)	9.0 (6.0)	13.5 (7.0)	<.001
≥11, n (%): Significant daytime sleepiness	274 (24.8)	57 (20.4)	215 (26.2)	0.04	153 (23.3)	82 (25.9)	23 (40.4)	7 (70.0)	<.001
Functional outcomes of sleep questionnaire									
Median (IQR)	14.7 (6.3)	16.2 (6.0)	14.3 (6.0)	<.001	15.2 (6.0)	14.3 (6.3)	10.5 (6.8)	10.3 (5.3)	<.001
<18, n (%): Significant impairment in daily function	841 (76.2)	183 (65.4)	655 (79.8)	<.001	490 (74.5)	256 (81.0)	51 (89.5)	10 (100.0)	0.01
Multivariable Apnea Prediction Index									
Median (IQR)	0.29 (0.40)	0.51 (0.32)	0.21 (0.32)	<.001	0.27 (0.37)	0.33 (0.44)	0.31 (0.49)	0.26 (0.19)	0.36
≥ 0.6, n (%): High risk of OSA	183 (16.6)	101 (36.1)	82 (10.0)	<.001	97 (14.7)	70 (22.2)	15 (26.3)	1 (10.0)	0.01
Self-reported diagnosed clinical sleep disorders by health care profession, n (%)									
Obstructive sleep apnea (OSA)	218 (19.7)	73 (26.1)	144 (17.5)	0.004	134 (20.4)	67 (21.2)	14 (24.6)	1 (10.0)	0.74
Insomnia	158 (14.3)	26 (9.3)	132 (16.1)	0.003	92 (14.0)	48 (15.2)	14 (24.6)	4 (40.0)	0.04
Restless leg syndrome	124 (11.2)	29 (10.4)	95 (11.6)	0.59	70 (10.6)	40 (12.7)	11 (19.3)	2 (20.0)	0.22
Any sleep disturbances or any previous diagnosed sleep disorders, n (%)	908 (82.2)	217 (77.5)	688 (83.8)	0.004	539 (81.9)	272 (86.1)	53 (93.0)	10 (100.0)	0.07

Summary and Conclusions

- In patients with vasculitis:
- Sleep disturbances are common (82.2%) and impact daily function.
 - Prevalence of OSA in this sample (20%) is higher than what has been reported the general population (6-17%).
 - The risk of OSA is higher in males than females.
 - Other sleep disorders, excessive daytime sleepiness, and daily functional impairment are more common in females.
 - Glucocorticoids are associated with a higher risk of sleep disturbances.
 - SleepVasc is the largest research to date investigating sleep quality in patients with vasculitis.
 - These data inform potential future intervention targets to improve health related quality of life, reduce risk of cardiovascular disease and mental health disorders, and improve fatigue among patients with vasculitis.

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