

# European Respiratory Society Annual Congress 2013

Abstract Number: 610

Publication Number: P2170

**Abstract Group:** 1.1. Clinical Problems

**Keyword 1:** COPD - diagnosis **Keyword 2:** COPD - management **Keyword 3:** No keyword

**Title:** Peculiar properties of sleep structure and impact of antidepressive therapy in COPD patients with concomitant depressive episode

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**Body:** Aim of study: to study the influence of agomelatin on sleep stages in COPD patients with depressive episode (DE). Materials and methods: 11 COPD patients with clinically diagnosed by psychiatrist DE (PHQ-9 score > 15), 4 female and 7 male, mean age ( $66,9 \pm 2,7$ ) years received agomelatin 25 mg 1 hour before sleep OD during 3 month on the background of standard COPD therapy according severity. Patients were assessed with polysomnography (PSG) at baseline, 2 weeks and 3 month of studied treatment. Results: all patients initially had normal AHI ( $1,6 \pm 0,3$ ) per hour. REM stage was abnormal at baseline - increased ( $31,4 \pm 3,2$ )% of total sleep time (TST) vs normal duration of REM stage in healthy population (NINDS). 3<sup>rd</sup> and 4<sup>th</sup> sleep stages were significantly decreased at baseline ( $4,6 \pm 7,1$ )% TST. After 2 weeks of therapy improvement of deep sleep stages was noted – ( $9,2 \pm 2,0$ )% TST ( $p < 0,05$  vs baseline) and after 3 month - ( $9,6 \pm 1,4$ ),  $p < 0,05$  vs baseline. Tendency to the improvement of REM stage was noted also after 2 weeks of treatment– it decreased to ( $27,5 \pm 3,0$ )%, and after 3 month - to ( $24,9 \pm 4,0$ ) of TST,  $p < 0,05$  vs baseline. Latency to REM stage (decreased at baseline - ( $51,5 \pm 7,6$ ) minutes vs normal duration of latency to REM stage, after 2 weeks increased to ( $67,5 \pm 8,8$ ) minutes with further improvement after 3 month to ( $79,0 \pm 9,6$ ),  $p < 0,05$  vs baseline. Sleep efficacy increased from ( $65,0 \pm 6,1$ ) to ( $78,2 \pm 3,2$ ),  $p < 0,01$ . Conclusion: use of agomelatin in complex COPD therapy in patients with COPD and depressive episode improved sleep structure, that revealed in: tendency to the normalization of REM, deep sleep stages and sleep efficacy.