341

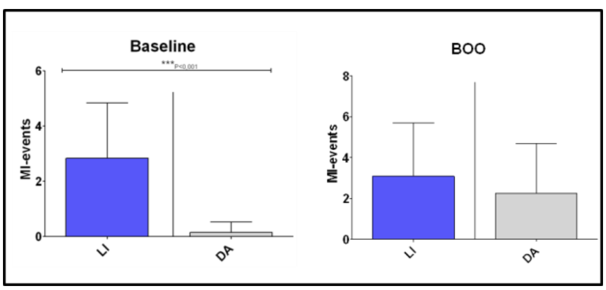
Huppertz N[1], Fera C[1], Leonhäuser D[1], Strick K[1], Zraik I[1], Schwantes U[2], Tolba R[3], Grosse J[1]
1. *Department of Urology, University Hospital RWTH Aachen, Germany,* ***2.*** *Dr. Pfleger Pharmaceuticals, Bamberg, Germany,* ***3.*** *Institute for Laboratory Animal Sciences, Medical Faculty RWTH, Germany*

NOCTURIA IN GÖTTINGEN MINIPIGS: A SYMPTOM OF OAB IN LABORATORY ANIMALS - RADIOTELEMETRIC MONITORING OF INFRAVESICAL OBSTRUCTION (BOO)

<u>Hypothesis / aims of study</u>
Nocturia is an important OAB-symptom, which is hardly transferable to animal models. Telemetric transmitter devices (TTD, DSI:USA) combined with video camera (VC) and flowmetry (FM) were used to determine circadian rhythms of micturition- (MI) and non-micturition-associated detrusor events (NM) with a special focus on nocturia in GM-model of infravesical obstruction.

<u>Study design, materials and methods</u>
The TTD were implanted, pressure-sensory catheters were placed and fixed into the bladder and peritoneum. Transmitted 24 h recordings were obtained in a metabolic cage within 6 six week (Baseline) followed by sphincter cuff placement (SCP) or by banding (BA) around the bladder neck to induce BOO monitored for 4 month. MI- and NM-events were assigned to light-phase (LI) from 7 am to 7 pm and dark-phase (DA) from 7 pm to 7 am.

<u>Results</u>
Percentage values are determined as the amount of MI and NM-events in DA and LI in a 24h-session.Effects of BOO (SPC) could be observed as decreasing amount of MI-events during LI from 53.70% to 41.54% and increasing amount during DA from 2.5 % to 24.8 %. NM-events during LI decreased from 30.63 % to 14.46 % and during DA remained unchanged (18.9 %). For BA similar results could be observed. During LI amount of MI-events decrease from 89.6 % to 50.8 % and during DA increased from 3.5 % to 21%. Amount of NM-events increased during LI from 6.63% to 17.5 % and DA from 0% to 10.5%.
During Baseline a significant difference between light- and dark-phase from 2.8 ± 0.6 micturitions and 0.15 ± 0.1 (n=13, 24h-sessions, p<0.001) could be observed. (Graph1). With an increase from 0.15 ± 0.1 micturitions in DA during baseline to 2.3 ± 0.7 during BOO a significant difference (n=11-13, 24h-sessions, P=0.0048) could be observed. So a higher micturition frequency during DA was present in GM with an infravesical obstruction (Graph 1). Differences in detrusor pressure profiles were only significant between Baseline and BOO MI-events during LI (n>19, p=0.0084) (Table 1).



Graph 1. MI-event in Baseline and BOO assigned To LI and DA

Table1. Pressure and duration of detrusor contractions

pig1	light	dark
baseline	38,5*/ 88,7	70,0/ 40,0
bOO	69,2/ 66,8	99,7/ 51,3
pig2		
baseline	39,4/ 100,7	38,85/ 85,0
bOO	59,4/ 188,1	99,4/ 148,7

*pressure [mmHg] / duration [s]

<u>Interpretation of results</u>
The amount of MI-events increased significantly during DA after BOO. So Nocturia could be observed under natural conditions in Göttingen Minipigs.

<u>Concluding message</u>
Radio-telemetry provides a high quality real-time natural filling CM monitoring on the longterm. Our video-telecystometric monitoring system allows identifying both nocturia, and detrusor instabilities induced through a BOO-model in GM.

<u>Disclosures</u>
Funding: Source of Funding: Grant No. 13 N 11308; Federal Ministry of Education and Research (BMBF); Germany **Clinical Trial:** No **Subjects:** ANIMAL **Species:** Göttingen Minipig **Ethics Committee:** Landesamt für Natur, Umwelt und Verbraucherschutz Nordrhein-Westfalen, Recklinghausen, Germany