Sleep Breathing Disorders

PAIN DRAWING CHARACTERISTICS AND RISK FOR SLEEP BREATHING DISORDERS IN AN OROFACIAL PAIN SERVICE

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Introduction: Subjects living with chronic pain are at risk for developing sleep breathing disorders (SBD). Altered sleep modifies the perception and reported intensity of pain. Many tools exist to evaluate pain, including validated scales and pain drawings. Pain drawings are associated to psychological profiles and prognostic variables in published studies on nociceptive lower back or peripheral pain. The utility of pain drawings in the orofacial pain area may be associated to disability, pain intensity, and risk for altered sleep. This study evaluates retrospectively the pain drawing characteristics (number of sites, number of muscles, surface pain drawing) of subjects presenting to an orofacial pain service and their association with risk for SBD, including daytime sleepiness and obstructive sleep apnea (OSA).

Materials and methods: An Institutional Review Board approved protocol was designed to perform the study. Records from subjects presenting to an orofacial pain service between November 2013 and March 2017, were reviewed and data extracted describing the pain characteristics (intensity, description, frequency, pattern, type), demographics, clinical diagnosis. All subjects completed SBD screening tools including the Epworth Scale, Stop Bang, Berlin questionnaires. Pain drawings were scanned and digitally standardized using Image J software. Measurements were done electronically on a group of five calibrated computers/screens. Analyses included descriptive statistics, frequency distributions, histogram, scatterplots, student t-test and ANOVA or non-parametric alternatives. Investigators were calibrated with 40 drawings until acceptable reliability (inter/intra examiner) was reached.

Results: Total number of subjects was 345. The majority of subjects were female (n=272), mean sample age 48.2 (46.2:50.2) 95% CI, 25% had constant pain, mean pain in the past six months was moderate 6.2 (5.9:6.5),95% CI. 47.8% reported no specific daily pattern to the pain. Clinical diagnoses were 56.5% muscular diagnosis, 19.1% articular, 15.4% inflammatory, 8.4% odontogenic, 23.2% neuropathic, 6.7% primary headache, 5.5% burning mouth syndrome (many were combined diagnoses). Pain drawing area was reported as the shaded proportion of total head and neck area. 160 subjects were at risk for SBD. The prevalence of suspected OSA was 40.8%. Reported painful sites, based on anatomic distribution, were a mean of 6.43 (5.8:7)95% CI. Reported painful muscles, based on major muscular groups, were a mean of 6.44 (5.7:7.1). In general, pain drawings were focused to the areas of pain, with few exceptions. There was a significant association between self reported lack of quality sleep (dichotomous) and risk for SBD ($p=0.01$). There was a statistically significant trend between total pain surface and risk for SBD ($p=0.07$ test of trend), a marginal significant association between total pain surface and risk for daytime sleepiness ($p=0.05$), and a significant association between total pain surface and OSA ($p=0.03$: Berlin).

Conclusions: This study reported interesting trends and pilot associations between pain drawing characteristics and risk for SBD. Pain drawings in head and neck pain models may be useful tools to characterize subjects with comorbid OSA and detect daytime sleepiness. The high prevalence of subjects at risk for OSA in this cohort demands careful consideration of SBD screening in clinical pain practice.