

10 A. CERVICAL SPINE

Work factors for neck pain

International Archives of Occupational and Environmental Health
pp 1–11| Cite as

Risk factors for episodic neck pain in workers: a 5-year prospective study of a general working population

Audrey Peti Julie Bodin Angélique Delarue Alexis D'Escatha Natacha Fouquet
Yves Roquelaure

Abstract

Purpose

Development of neck pain (NP) in workers has a multifactorial etiology and depends on both individual and workplace factors. The aim of this study was to investigate risk factors for episodic NP in a large diverse sample of active workers.

Methods

A prospective study based on the surveillance program implemented by the French Public Health Agency in the Loire Valley region. Between 2002 and 2005, 3710 workers were included. Between 2007 and 2010, 2332 workers responded to a follow-up questionnaire which assessed: (1) musculoskeletal symptoms (Nordic questionnaire) and (2) individual and work-related risk factors. Associations between episodic NP in 2007 (i.e., free subjects at baseline and who suffered at least 8 days during the preceding 12 months) and individual and work-related risk factors at baseline were studied using logistic regression modeling, stratified by sex.

Results

Among the 1510 workers (914 men, 596 women) still active at follow-up, 10.4% (8.4–12.4) of men and 14.6% (11.8–17.4) of women declared episodic NP. Among men, work pace dependence of guests or permanent hierarchical controls were risk factors of NP [OR = 1.8 (1.1–2.8) and OR = 2.1 (1.3–3.3), respectively]. Among women, the combination of sustained/repeated arm abduction with high physical perceived exertion was the strongest risk factor for NP [OR = 3.5 (1.7–7.2)]; age and paced work were also predictors for NP in women.

Conclusions

NP results from complex relationships between individual and work-related variables. High physical workload, awkward postures, and poor organizational environment together with age differently predicted episodic NP according to the sex.

Blocked vertebrae

European Spine Journal pp 1–7| Cite as

Adjacent segment degeneration after intervertebral fusion surgery by means of cervical block vertebrae

Xinlong Ma Yuren Du Shuli Wang Jianxiong Ma Tao Wang Mingjie Kuang
Baoyi Ma

Background The prevalence of cervical block vertebrae is unknown. Furthermore, there is no consensus on the cause of adjacent segment degeneration (ASD) after cervical fusion.

Questions/purposes (1) What is the incidence of cervical block vertebrae? Is there a gender difference? (2) Among cervical block vertebrae cases, is ASD related to age and segment? And what is the specific relationship? (3) What are the imaging findings and characteristics of this disease?

Patients and methods We retrospectively diagnosed cervical block vertebrae cases with bony fusions in any segments of the cervical spine without intervertebral fusion surgery of 33,762 patients reported from 2006 to 2011 in north China. Then the X-ray of the obtained cases were observed and counted. The primary outcome was incidence of ASD according to age and segment. The secondary outcome measures were C2–7 angle in fusion (single segment fusion of lower cervical vertebra) and control groups (randomly selected cases of non-fusion), Cobb's angle of fusion segments, and curvature of each lower cervical segment in the control group.

Results A total of 218 cervical block vertebrae cases were found, with a incidence of 0.65%, and C2–3 represented the highest number of fusion segment cases. There were no significant differences in the incidence by sex. Varying degrees of degeneration in the adjacent segment was present in 112 cases (51.4%). The incidence of ASD increased with age, with the ASD growth rate reaching its peak at the age of 51–60 years (55.08%). Cervical curvature shows no significant difference between patients with cervical block vertebrae and normal individuals. The segmental curvature was lower in the fusion group than in the control group, with statistical significance achieved in fusion segments located in C4–5, C5–6, and C6–7, but not C3–4.

Conclusions Fusion segments located in C4–5, C5–6, and C6–7 are more prone to ASD than C3–4. The incidence of ASD in patients with vertebral fusion increases with age.

Level of evidence III.

13 B. TMJ/ORAL**Teeth, and heart disease**

J Periodontal Res. 2017 Nov 15. doi: 10.1111/jre.12494.

Associations among tooth loss, systemic inflammation and antibody titers to periodontal pathogens in Japanese patients with cardiovascular disease.

Aoyama N^{1,2}, Suzuki JI^{3,4}, Kobayashi N², Hanatani T⁵, Ashigaki N⁶, Yoshida A², Shiheido Y², Sato H², Minabe M¹, Izumi Y², Isobe M⁴.

Author information

Abstract***BACKGROUND AND OBJECTIVE:***

It is well known that there is a strong relationship between periodontitis and cardiovascular disease (CVD). Tooth loss reflects an end-stage condition of oral diseases, such as periodontitis. Infection with specific periodontal pathogens is known as a possible factor that influences development of CVD. The aim of this study was to assess the relationship between the number of residual teeth and systemic inflammatory conditions in patients with CVD.

MATERIAL AND METHODS:

We divided 364 patients with CVD into four groups, according to the number of residual teeth: (i) ≥ 20 teeth; (ii) 10-19 teeth; (iii) 1-9 teeth; and (iv) edentulous. We recorded medical history, blood data and periodontal conditions. Serum samples were obtained and their IgG titers against three major periodontal pathogens were measured.

RESULTS:

Smoking rate and the prevalence of diabetes mellitus were higher in edentulous patients and in subjects with a few teeth compared with patients with many teeth. The levels of C-reactive protein were higher in patients with 1-9 teeth than in those with 10-19 teeth and with ≥ 20 teeth. The level of Porphyromonas gingivalis IgG in the group with 10-19 teeth was statistically higher than that in the group with ≥ 20 teeth. The level of P. gingivalis IgG in the edentulous group tended to be lower than that in the other groups.

CONCLUSION:

The patients with 1-9 teeth had the highest level of C-reactive protein among the four groups, and the patients with 10-19 teeth had the highest level of IgG to periodontal bacteria. We conclude that the number of remaining teeth may be used to estimate the severity of systemic inflammation in patients with CVD.

Depression

J Oral Rehabil. 2017 Dec;44(12):925-933. doi: 10.1111/joor.12552. Epub 2017 Sep 21.

Depressive symptoms account for differences between self-reported versus polysomnographic assessment of sleep quality in women with myofascial TMD.

Dubrovsky B^{1,2}, Janal MN³, Lavigne GJ⁴, Sirois DA¹, Wigren PE^{1,5}, Nemelivsky L⁶, Krieger AC⁷, Raphael KG¹.

Author information

Abstract

Patients with temporomandibular disorder (TMD) report poor sleep quality on the Pittsburgh Sleep Quality Index (PSQI).

However, polysomnographic (PSG) studies show meagre evidence of sleep disturbance on standard physiological measures. The present aim was to analyse self-reported sleep quality in TMD as a function of myofascial pain, PSG parameters and depressive symptomatology. PSQI scores from 124 women with myofascial TMD and 46 matched controls were hierarchically regressed onto TMD presence, ratings of pain intensity and pain-related disability, in-laboratory PSG variables and depressive symptoms (Symptoms Checklist-90). Relative to controls, TMD cases had higher PSQI scores, representing poorer subjective sleep and more depressive symptoms (both $P < 0.001$). Higher PSQI scores were strongly predicted by more depressive symptoms ($P < 0.001$, $R^2 = 26\%$). Of 19 PSG variables, two had modest contributions to higher PSQI scores: longer rapid eye movement latency in TMD cases ($P = 0.01$, $R^2 = 3\%$) and more awakenings in all participants ($P = 0.03$, $R^2 = 2\%$). After accounting for these factors, TMD presence and pain ratings were not significantly related to PSQI scores.

These results show that reported poor sleep quality in TMD is better explained by depressive symptoms than by PSG-assessed sleep disturbances or myofascial pain. As TMD cases lacked typical PSG features of clinical depression, the results suggest a negative cognitive bias in TMD and caution against interpreting self-report sleep measures as accurate indicators of PSG sleep disturbance. Future investigations should take account of depressive symptomatology when interpreting reports of poor sleep.

Hyaluronic Acid

J Periodontol. 2017 Sep 15:1-14. doi: 10.1902/jop.2017.170105.

Effect of Topically-Applied Hyaluronic-Acid on Pain and Palatal Epithelial Wound Healing: An Examiner-Blind, Randomized, Controlled Clinical Trial.

Yıldırım S¹, Özener HÖ¹, Doğan B¹, Kuru B².

Author information

Abstract

BACKGROUND:

This study aimed to evaluate the effects of two different concentrations of topical hyaluronic-acid on post-operative patient discomfort and wound healing of palatal donor sites following free gingival graft (FGG) surgery.

METHODS:

Thirty-six patients requiring FGG were randomly assigned into three groups in an examiner-blind, randomized-controlled clinical trial. After harvesting palatal grafts, 0.2% and 0.8% hyaluronic-acid gels were used in the test-1 and -2 groups, respectively. Gels were applied on donor sites and protected with periodontal dressing in the test groups whereas the wound was covered only with periodontal dressing in the control group. On days 3-7-14 and 21, pain and burning sensation were recorded by using visual analog scale (VAS) as well as other parameters such as complete epithelization (CE) and color match on days 3-7-14-21-42.

RESULTS:

Test groups experienced less pain than the control group on days 3 and 7 ($P<0.001$ and $P<0.001$, respectively). The mean VAS score for burning sensation was higher in the control group on day 3 compared to the test-1 and -2 groups ($P=0.033$ and $P=0.020$, respectively). CE in all patients was achieved on day 21 in both test groups while it was achieved on day 42 in the control group. The test groups showed higher color match scores than the control group on days 21 ($P<0.001$ and $P<0.001$, respectively) and 42 ($P=0.004$ and $P=0.002$, respectively).

CONCLUSION:

Topical application of hyaluronic-acid exhibits positive impact on post-operative pain, burning sensation and accelerates palatal wound healing in terms of epithelization and color match.

Periodontitis and diabetes

J Clin Periodontol. 2017 Nov 10. doi: 10.1111/jcpe.12839.

Prevalence of Diabetes Mellitus in People Clinically Diagnosed with Periodontitis: A Systematic Review and Meta-analysis of Epidemiologic Studies.

Ziukaite L¹, Slot DE¹, Van der Weijden FA^{1,2}.

Author information

Abstract**OBJECTIVES:**

Diabetes mellitus and periodontitis are complex chronic diseases with an established bidirectional relationship. This systematic review evaluated in subjects with professionally diagnosed periodontitis the prevalence and odds of having diabetes.

METHODS:

The MEDLINE-PubMed, CENTRAL and EMBASE databases were searched. Prevalence of diabetes mellitus among subjects with periodontitis were extracted or if possible calculated.

RESULTS:

From the 803 titles and abstracts that came out of the search, 29 papers met the initial criteria. Prevalence of diabetes was 9.4% among subjects with periodontitis and 12.8% among subjects without periodontitis. Based on sub-analysis, for subjects with periodontitis, the prevalence of diabetes was 6.5% when diabetes was self-reported, compared to 17.3% when diabetes was clinically assessed. The highest prevalence of diabetes among subjects with periodontitis was observed in studies originating from Asian countries (17.2%, n=16647) and the lowest in studies describing populations from Europe (4.3%, n=7858). The overall odds ratio for diabetes patients to be among subjects with periodontitis as compared to those without periodontitis was 2.59 (95% CI [2.12; 3.15]). A substantial variability in the definitions of periodontitis, combination of self-reported and clinically assessed diabetes, lack of confounding for diabetes control in included studies introduces estimation bias.

CONCLUSIONS:

The overall prevalence and odds of having diabetes is higher within periodontitis populations compared to people without periodontitis. Self-reported diabetes underestimates the prevalence when compared to this condition assessed clinically. Geographical differences were observed: the highest diabetes prevalence among subjects with periodontitis was observed in studies conducted in Asia and the lowest in studies originating from Europe. This article is protected by copyright. All rights reserved.

13 C. AIRWAYS/SWALLOWING/SPEECH**Pneumonia colonization**

Int J Dent Hyg. 2017 Nov 9. doi: 10.1111/idh.12321.

The association between oral health status and respiratory pathogen colonization with pneumonia risk in institutionalized adults.

Hong C¹, Aung MM², Kanagasabai K³, Lim CA⁴, Liang S⁵, Tan KS⁴.
Author information

Abstract**OBJECTIVES:**

This study aimed to assess the oral health and the prevalence of pre-existing oral colonization with respiratory pathogens in dependent elderly, and whether these factors influence pneumonia development.

MATERIALS AND METHODS:

Participants residing in a long-term care facility received bedside oral examinations, and information on their oral health (caries status, calculus index and debris index) was obtained. Samples from the tongue and teeth were collected at baseline and at time of pneumonia development. Sputum was collected at the time of pneumonia diagnosis. Samples were assessed for Haemophilus influenzae, Klebsiella pneumoniae, Pseudomonas aeruginosa, Staphylococcus aureus and Streptococcus pneumoniae by polymerase chain reaction.

RESULTS:

This was a 1-year longitudinal study of 60 dependent elderly (mean age: 64.2 ± 14.1 years). Seventeen patients (28.3%) developed pneumonia. The mean Decayed, Missing and Filled Teeth and Simplified Oral Hygiene Index were 22.8 ± 9.2 and 4.0 ± 1.0 , respectively. At baseline, 48.3% were orally colonized with ≥ 1 respiratory pathogens. The presence of H. influenzae ($P = .002$) and P. aeruginosa ($P = .049$) in the sputum was significantly associated with their colonization on the tongue at baseline. In the bivariate analyses, pneumonia development was associated with naso-gastric feeding tube ($P = .0001$), H. influenzae ($P = .015$) and P. aeruginosa ($P = .003$) tongue colonization at baseline and calculus index ($P = .002$). Multivariate analyses revealed that calculus index ($P = .09$) and the presence of tracheostomy ($P = .037$) were associated with pneumonia.

CONCLUSIONS:

The calculus amount and tongue colonization with respiratory pathogens are risk factors for pneumonia development. Oral hygiene measures to remove tongue biofilm and calculus may reduce pneumonia development.

14. HEADACHES

Brain changes in post-traumatic HA sufferers

Headache. 2017 Nov 15. doi: 10.1111/head.13223.

Less Cortical Thickness in Patients With Persistent Post-Traumatic Headache Compared With Healthy Controls: An MRI Study.

Chong CD¹, Berisha V², Chiang CC¹, Ross K³, Schwedt TJ¹.

Author information

Abstract

OBJECTIVE: To investigate differences in cortical thickness in patients with persistent post-traumatic headache (PPTH) relative to healthy controls and to interrogate whether cortical morphology relates to headache burden (headache frequency, years with post-traumatic headache, PTH) in patients with PPTH.

BACKGROUND: PTHs are one of the most common symptoms following concussion. In some patients, PTHs continue for longer than three months and are classified as PPTH. This study has two main goals: (1) To delineate the neuropathology of PPTH, by interrogating differences in cortical thickness in patients with PPTH relative to healthy controls. (2) To interrogate potential associations between brain morphology and headache burden in patients with PPTH by examining whether cortical thickness relates to frequency of headaches or years lived with PTH.

METHODS: Adults with PPTH diagnosed according to ICHD 3 beta diagnostic criteria and healthy controls underwent brain MRI on a 3 Tesla scanner. Vertex-by-vertex whole brain estimates of cortical thickness were automatically calculated using FreeSurfer v5.3. Differences in cortical thickness in patients with PPTH relative to healthy controls were determined using a general linear model design. Associations were explored between regional clusters where patients with PPTH showed cortical thickness differences compared with healthy controls with headache frequency and years lived with PPTH.

RESULTS: This study included 33 patients with PPTH and 33 healthy control subjects (healthy controls: median age = 33.0, IQR = 15.5; patients with PPTH: median age = 36.0, IQR = 20.5; $P = .56$). Patients with PPTH had less cortical thickness relative to healthy controls in the left and right superior frontal, caudal middle frontal, and precentral cortex as well as less cortical thickness in the right supramarginal, right superior and inferior parietal, and right precuneus region ($P < .05$, Monte Carlo corrected for multiple comparisons). There were no regions where patients with PPTH had more cortical thickness relative to healthy controls. A correlation analysis of regions that showed less cortical thickness in patients with PPTH demonstrated a negative correlation between left and right superior frontal thickness with headache frequency ($P < .05$). There was no association between regional cortical thickness and years lived with PPTH.

CONCLUSION: Compared with healthy controls, patients with PPTH had less cortical thickness in bilateral frontal regions and right hemisphere parietal regions. For patients with PPTH, more frequent headaches were related to less thickness in the left and right superior frontal regions, potentially indicating that brain morphology changes in the superior frontal regions in patients with PPTH are modified by headache frequency.

Auras and MRI's

Ann Neurol. 2017 Nov 11. doi: 10.1002/ana.25096.

Heterogenous migraine aura symptoms correlate with visual cortex fMRI responses.

Arngrim N¹, Hougaard A¹, Ahmadi K², Vestergaard MB³, Schytz HW¹, Amin FM¹, Larsson HBW³, Olesen J¹, Hoffmann MB^{2,4}, Ashina M¹.

Author information**Abstract****OBJECTIVE:**

Migraine aura is sparsely studied due to the highly challenging task of capturing patients during aura. Cortical spreading depression (CSD) is likely the underlying phenomenon of aura. The possible correlation between the multifaceted phenomenology of aura symptoms and the effects of CSD on the brain has not been ascertained.

METHODS:

Five migraine patients were studied during various forms of aura symptoms induced by hypoxia, sham or physical exercise and photostimulation. The blood oxygenation level-dependent (BOLD) functional MRI (fMRI) signal response to visual stimulation was measured in retinotopic mapping defined visual cortex area V1 - V4.

RESULTS:

We found reduced BOLD response in patients reporting scotoma and increased response in patients who only experienced positive symptoms. Furthermore, patients with bilateral visual symptoms had corresponding bi-hemispherical changes in BOLD response.

INTERPRETATION:

These findings suggest that different aura symptoms reflect different types of cerebral dysfunction, which correspond to specific changes in BOLD signal reactivity. Furthermore, we provide evidence of bilateral CSD recorded by fMRI during bilateral aura symptoms. This article is protected by copyright. All rights reserved.

Subdural Hematoma

Headache. 2017 Nov 4. doi: 10.1111/head.13218.

Distinguishing Characteristics of Headache in Nontraumatic Subarachnoid Hemorrhage.

Mac Grory B¹, Vu L², Cutting S¹, Marcolini E³, Gottschalk C², Greer D⁴.

Author information

Abstract

INTRODUCTION: Subarachnoid hemorrhage (SAH) is a life-threatening emergency that is frequently missed due to its varied and often subtle presentation. The most common presentation of SAH is with a severe headache. The classical adjective used in SAH is "thunderclap"; however, this has not been well defined in the literature, rendering it a challenge to triage patients in clinical practice presenting with severe headache.

METHODS: We undertook a prospective, observational study at a tertiary academic medical center examining the clinical characteristics of the presenting headache in SAH. We enrolled patients through the emergency department and from the neurosciences intensive care unit, and documented clinical features of the headache including the time to peak intensity, location, associated symptoms, and activities that caused worsening.

RESULTS: One hundred and fifty-eight subjects were enrolled, of whom 20 patients had SAH and 138 did not. Notable distinguishing features on history included occipital location (55% in the SAH group vs 22% in the non-SAH group, $P < .001$), "stabbing" quality (35% in the SAH group vs 5% in the non-SAH group, $P < .001$), presence of prior headache (50% in the SAH group vs 83% in the non-SAH group, $P = .002$), and associated meningismus (80% in the SAH group and 42% in the non-SAH group, $P = .002$). Sixty-five percent of patients with SAH reported that their headache peaked within 1 second of onset, compared with only 10% of those without SAH ($P < .001$).

CONCLUSION: This is the first study that has sought to examine in detail the clinical characteristics of the presenting headache in SAH. Our study suggests that the clinical features of headache with SAH are distinct from those associated with other headache syndromes, and that this may prove useful in the acute care setting in triaging patients with a chief complaint of headache.

16. CONCUSSIONS

Gait changes

Dual-Task Assessment Protocols in Concussion Assessment: A Systematic Literature Review

Authors: Michelle Kleiner, PT, BScPT¹, Lynne Wong, PT, MScPT¹, Alexandra Dubé, PT, MPT¹, Katie Wnuk, PT, MPT¹, Susan W. Hunter, PT, PhD¹, Laura J. Graham, PT, PhD¹

AFFILIATIONS:

Published: *Journal of Orthopaedic & Sports Physical Therapy*,

2017 **Volume:**0 **Issue:**0 **Pages:**1–51 **DOI:** 10.2519/jospt.2018.7432

Study Design

Systematic review.

Background

When assessed in isolation, balance and neurocognitive testing may not be sufficiently responsive to capture changes that occur with concussion. Normal daily activities require simultaneous cognitive and physical demands. Therefore, a dual-task assessment paradigm should be considered to identify performance deficits.

Objectives

To evaluate the literature and identify dual-task testing protocols associated with changes in gait after concussion.

Methods

A systematic review of articles of individuals with concussion who underwent dual-task testing with a combination of motor and cognitive tasks. AMED, CINAHL, EMBASE, PsycINFO, PubMed, Scopus, SPORTDiscus, and Web of Science databases and grey literature were searched from inception to January 29, 2017. Title and abstract, full-text, quality review and data abstraction were performed by two independent reviewers.

Results

Twenty-four articles met the inclusion criteria. Eleven articles reported decreased gait velocity and increased medial-lateral displacement for individuals with concussion during dual-task conditions. Overall, included articles were of poor to moderate methodological quality. Fifteen articles used the same participants and datasets creating a threat to validity limiting the ability to make conclusions.

Conclusion

A deterioration in gait performance during dual-task testing is present among people with concussion. Specific recommendations for a dual-task protocol that may be used in clinical practice to assess individuals with a suspected concussion injury has yet to be determined and merits further research. *J Orthop Sports Phys Ther*, Epub 7 Nov 2017.
*doi:*10.2519/jospt.2018.7432

35. KNEE/TOTAL

Depressive disorder

Patients with major depressive disorder experience increased perception of pain and opioid consumption following total joint arthroplasty

Journal of Arthroplasty | November 09, 2017

sponsor

Etcheson JJ, et al.

In this study, the patient perception of pain and opioid consumption following a total knee arthroplasty (TKA) or a total hip arthroplasty (THA) was compared between patients with and without major depressive disorder (MDD), with a special emphasis laid on comparing the pain intensity, lengths of stay (LOS), opioid consumption, and patient perception of pain control.

Although not statistically significant, higher levels of postoperative pain were perceived by patients with major depressive disorder who underwent lower extremity joint arthroplasty, when compared with a matched non-depressed cohort. During the immediate post-operative period, the reported opioid consumption was more in total joint arthroplasty (TJA) patients with MDD vs their matched cohort. Patients' course of recovery could be modulated by identifying patient-specific factors, such as MDD, which in turn, may improve outcomes and result in shorter hospital stays.

Based on the growing opioid abuse epidemic, results of this inquiry warrant more cooperation between arthroplasty surgeons and primary care providers in order to optimize outcome and maximize value of care.

37. OSTEOARTHRITIS/KNEE**Monocyte inflammation****Monocyte activation is elevated in women with knee-osteoarthritis and associated with inflammation, BMI and pain**

Dessi Loukov Sarah Karampatos Monica R. Maly Dawn M.E. Bowdish

Objective

Monocytes contribute to synovitis and disease pathogenesis in OA. Low-grade inflammation occurs in OA and correlates with disease severity and progression. Since monocyte development and function is altered by systemic inflammation, we analyzed monocyte numbers and function between individuals with knee OA and healthy age- and sex-matched controls.

Design

We analyzed markers of soluble and cellular inflammation in peripheral blood of women with knee OA and compared them to healthy age- and sex-matched controls. Soluble inflammatory mediators (TNF, IL-6, IL-10 and CRP) in the serum were measured by high-sensitivity ELISA. Leukocyte numbers, surface expression of monocyte activation markers, and monocyte production of pro-inflammatory mediators (TNF and IL-1 β) following stimulation were measured by flow cytometry.

Results

Women with knee OA (n=15) had elevated levels of serum CRP and a lower proportion of circulating monocytes. Monocytes from OA participants had elevated expression of the activation markers CD16, CCR2, and HLA-DR and induced greater production of TNF and IL-1 β compared to healthy controls. Higher serum TNF and BMI were correlated with increased monocyte expression of CCR2. Additionally monocyte CCR2 expression and serum TNF were correlated with worse pain on a validated questionnaire.

Conclusions

Our findings suggest monocytes are activated prior to their entry into the synovium. Modulating systemic inflammation and monocyte recruitment to the synovium could be of therapeutic benefit.

Pain sensitization

Clin J Pain. 2017 Dec;33(12):1081-1087. doi: 10.1097/AJP.0000000000000495.

Age Interactions on Pain Sensitization in Patients With Severe Knee Osteoarthritis and Controls.

Petersen KK¹, Arendt-Nielsen L, Finocchietti S, Hirata RP, Simonsen O, Laursen MB, Graven-Nielsen T.

Author information

Abstract**OBJECTIVES:**

Widespread pressure hyperalgesia, facilitated temporal summation of pain (TSP), and impaired conditioned pain modulation (CPM) have been found in knee osteoarthritis (KOA) patients compared with controls and these parameters have further been suggested to be altered in the elderly. This study investigated the influence of age on pressure hyperalgesia, TSP, and CPM in patients with KOA and controls.

MATERIALS AND METHODS:

One hundred thirty-three severe KOA patients and 50 age-matched and sex-matched asymptomatic controls were assessed by cuff algometry and handheld pressure algometry. Pain sensitivity was assessed around the head of the gastrocnemius muscle to identify mild pain detection threshold (MPDT) and pressure tolerance threshold (PTT). TSP was assessed by visual analogue scale scores of the pain evoked by 10 repetitive cuff stimulations. CPM was assessed as the difference in PTT before and during cuff-induced tonic arm pain. Pressure pain thresholds (PPTs) were assessed by handheld algometry at the tibialis anterior muscle. Two subgroups were analyzed in the age range below and above 65 years. Pearson correlations between age and pain parameters were applied.

RESULTS:

Patients demonstrated reduced MPDT, PTT, and PPT ($P < 0.01$), facilitated TSP ($P < 0.02$), and a trend toward impaired CPM ($P = 0.06$) compared with controls. A negative correlation was found between MPDT, PTT, and PPT and age ($P < 0.05$) but no age-related association was found for TSP and CPM.

DISCUSSION:

Pressure hyperalgesia was affected by age whereas dynamic pain mechanisms such as TSP and CPM were unaffected suggesting that these parameters are robust for a larger age range and reliable for long-term follow-up studies.

59. PAIN**Vit. D helps chronic widespread pain**

Clin Rheumatol. 2017 Dec;36(12):2825-2833. doi: 10.1007/s10067-017-3754-y. Epub 2017 Aug 15.

Effect of vitamin D supplementation in chronic widespread pain: a systematic review and meta-analysis.

Yong WC¹, Sanguankeo A^{2,3}, Upala S^{2,3}.

Author information

Abstract

Chronic non-specific widespread pain (CWP) including fibromyalgia (FMS) is characterized by widespread pain, reduced pain threshold, and multiple tender points on examination, causing disability and decreased quality of life.

Vitamin D has been proposed as an associated factor in CWP. This meta-analysis aimed to explore the benefit of vitamin D supplementation in the management of CWP. A comprehensive search of the CENTRAL, MEDLINE, and Embase databases was performed from inception through January 2017.

The inclusion criterion was the randomized clinical trials' evaluating the effects of vitamin D treatment in adult subjects with CWP or FMS. CWP was defined as chronic recurrent musculoskeletal pain without secondary causes; FMS patients met the American College of Rheumatology criteria for FMS. Study outcome was assessed using visual analog scale (VAS) of pain intensity. Pooled mean difference (MD) of VAS and 95% confidence interval (CI) were calculated using a random-effect meta-analysis. Meta-regression analysis using a random-effects model was performed to explore the effects of change in vitamin D in the treatment group on difference in the mean of VAS. Sensitivity analysis was performed to evaluate the robustness of results. The between-study heterogeneity of effect size was quantified using the Q statistic and I^2 . Data were extracted from four randomized controlled trials involving 287 subjects. Pooled result demonstrated a significantly lower VAS in CWP patients who received vitamin D treatment compared with those who received placebo (MD = 0.46; 95% CI 0.09-0.89, $I^2 = 48\%$). Meta-regression analysis revealed no significant relationship between the changes of vitamin D and VAS (coefficient = 0.04 (95% CI -0.01 to 0.08), $p = 0.10$).

In this meta-analysis, we conclude that vitamin D supplementation is able to decrease pain scores and improve pain despite no significant change in VAS after increasing serum vitamin D level. Further studies need to be conducted in order to explore the improvement of functional status, quality of life, and the pathophysiological change that improves chronic widespread pain.

Prevalence of neuropathic pain

ORIGINAL RESEARCH

The prevalence of probable neuropathic pain in the US: results from a multimodal general-population health survey

Authors DiBonaventura MD, Sadosky A, Concialdi K, Hopps M, Kudel I, Parsons B, Cappelleri JC, Hlavacek P, Alexander AH, Stacey BR, Markman JD, Farrar JT

DOI <https://doi.org/10.2147/JPR.S127014>

Background: The prevalence of neuropathic pain (NeP) has been estimated within specific health conditions; however, there are no published data on its broad prevalence in the US. The current exploratory study addresses this gap using the validated PainDetect questionnaire as a screener for probable NeP in a general-population health survey conducted with a multimodal recruitment strategy to maximize demographic representativeness.

Materials and methods: Adult respondents were recruited from a combination of Internet panels, telephone lists, address lists, mall-based interviews, and store-receipt invitations using a random stratified-sampling framework, with strata defined by age, sex, and race/ethnicity. Older persons and minorities were oversampled to improve prevalence estimates. Results were weighted to match the total adult US population using US Census data. Demographic information was collected, and respondents who experienced physical pain in the past 12 months completed the PainDetect and provided additional pain history. A cutoff score of 19 or greater on the PainDetect was used to define probable NeP.

Results: A total of 24,925 respondents (average response rate 2.5%) provided demographic data (52.2% female, mean age 51.5 years); 15,751 respondents reported pain (63.7%), of which 2,548 (15.7%, 95% confidence interval 14.9%–16.5%) had probable NeP based on the PainDetect, which was 10% (95% confidence interval 9.5%–10.5%) of all respondents. Among those reporting pain, the prevalence of probable NeP among Blacks and Hispanics was consistently higher than Whites in each age- and sex group. The highest prevalence among those with pain was among male Hispanics 35–44 years (32.4%) and 45–54 years (24.2%) old. The most commonly used medications reported by those with probable NeP were nonsteroidal anti-inflammatory drugs (44.2%), followed by weak opioids (31.7%), antiepileptics (10.9%), and strong opioids (10.9%).

Conclusion: This is the first study to provide an estimate of the prevalence of probable NeP in the US, showing significant variation by age and ethnicity.

Fear avoidance

Clin J Pain. 2017 Dec;33(12):1088-1099. doi: 10.1097/AJP.0000000000000501.

The Fear-Avoidance Components Scale (FACS): Responsiveness to Functional Restoration Treatment in a Chronic Musculoskeletal Pain Disorder (CMPD) Population.

Neblett R¹, Mayer TG, Williams MJ, Asih S, Cuesta-Vargas AI, Hartzell MM, Gatchel RJ.
Author information

Abstract**OBJECTIVES:**

To assess the clinical validity and factor structure of the Fear-Avoidance Components Scale (FACS), a new fear-avoidance measure.

MATERIALS AND METHODS:

In this study, 426 chronic musculoskeletal pain disorder patients were admitted to a Functional Restoration Program (FRP). They were categorized into 5 FACS severity levels, from subclinical to extreme, at admission, and again at discharge. Associations with objective lifting performance and other patient-reported psychosocial measures were determined at admission and discharge, and objective work outcomes for this predominantly disabled cohort, were assessed 1 year later.

RESULTS:

Those patients in the severe and extreme FACS severity groups at admission were more likely to "drop out" of treatment than those in the lower severity groups ($P=0.05$). At both admission and discharge, the FACS severity groups were highly and inversely correlated with objective lifting performance and patient-reported fear-avoidance-related psychosocial variables, including kinesiophobia, pain intensity, depressive symptoms, perceived disability, perceived injustice, and insomnia ($P_s < 0.001$). All variables showed improvement at FRP discharge. Patients in the extreme FACS severity group at discharge were less likely to return to, or retain, work 1 year later ($P \leq 0.02$). A factor analysis identified a 2-factor solution.

DISCUSSION:

Strong associations were found among FACS scores and other patient-reported psychosocial and objective lifting performance variables at both admission and discharge. High discharge-FACS scores were associated with worse work outcomes 1 year after discharge. The FACS seems to be a valid and clinically useful measure for predicting attendance, physical performance, distress, and relevant work outcomes in FRP treatment of chronic musculoskeletal pain disorder patients.

Small fiber neuropathy

Eur J Neurol. 2017 Nov 7. doi: 10.1111/ene.13508.

Associated conditions in small fiber neuropathy - A large cohort study and review of the literature.

de Greef BTA¹, Hoeijmakers JGJ¹, Gorissen-Brouwers CML¹, Geerts M¹, Faber CG¹, Merkies ISJ^{1,2}.

Author information

Abstract

BACKGROUND:

Small fiber neuropathy (SFN) is a common disorder, leading to neuropathic pain and autonomic symptoms. The objective of this study was to investigate associated conditions in a large cohort of SFN patients and compare the prevalence to healthy individuals.

METHODS:

A total of 921 patients with pure SFN were screened according to a standardized comprehensive diagnostic algorithm and compared with literature findings.

RESULTS:

In 53% of the patients, no associated condition could be found. Autoimmune diseases, sodium channel gene mutations, diabetes mellitus including glucose intolerance, and vitamin B12 deficiencies were higher prevalent when compared to reported literature findings, followed by alcohol abuse, chemotherapy, monoclonal gammopathy of undetermined significance, and haemochromatosis. In patients that were already known with a possible underlying condition at screening, additional underlying conditions were still found in another 26.7% of patients.

CONCLUSIONS:

Based on these results, we recommend screening patients with pure SFN at least for autoimmune diseases, sodium channel gene mutations, diabetes mellitus including glucose intolerance, and vitamin B12 deficiency, even when they already have a potential underlying condition at referral.

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61. FIBROMYALGIA**Olfactory changes**

Clin Rheumatol. 2017 Dec;36(12):2821-2824. doi: 10.1007/s10067-017-3772-9. Epub 2017 Jul 26.

Decreased olfactory bulb volumes in patients with fibromyalgia syndrome.

Sayılır S¹, Çullu N².

Author information**Abstract**

Among the other symptoms, impaired olfactory function such as odor identification, threshold, and discrimination have been reported in patients with fibromyalgia syndrome (FMS).

To investigate olfactory bulb (OB) volumes in FMS, by using magnetic resonance imaging (MRI), and to make reasonable suggestions are the goals of the present study. The study included 62 individuals as the FMS group (n = 30) and the control group (n = 32). MRI examinations were performed by a 1.5-T scanner and a standard head coil was used for the images. The coronal T2-weighted images were used for to measure OB volumes. Right, left, and total OB volumes were calculated with the aid of these images. The mean age of the FMS group was 44.2 ± 8.3 years and the control group was 41.7 ± 3.53 years. The mean volume of the right OB was $74.9 \pm 12.4 \text{ mm}^3$ in the FMS group and was $92.6 \pm 12.9 \text{ mm}^3$ in the control group. The mean value of the left OB volume was $74.3 \pm 10.8 \text{ mm}^3$ in the FMS group and $92.8 \pm 12.6 \text{ mm}^3$ in the control group. The mean of the total OB volume was $146.6 \pm 20.81 \text{ mm}^3$ in the FMS group and $186.5 \pm 23.5 \text{ mm}^3$ in the control group. Left, right, and total OB volumes were significantly lower in the FMS group than in the control group (all $p < 0.05$).

Female patients with FMS are under the risk of the decreased olfactory bulb volumes. This situation should be kept in mind for proper and reasonable management of this tough syndrome.

62 A. NUTRITION/VITAMINS**Hyaluronic Acid**

BMC Musculoskelet Disord. 2017 Nov 13;18(1):444. doi: 10.1186/s12891-017-1809-5.

Can hybrid hyaluronic acid represent a valid approach to treat rizoarthrosis? A retrospective comparative study.

Tenti S¹, Pascarelli NA¹, Giannotti S², Galeazzi M¹, Giordano N³, Fioravanti A⁴.

Author information**Abstract****BACKGROUND:**

Osteoarthritis (OA) of the trapeziometacarpal joint (TMJ) is a disabling condition with a significant impact on quality of life. The optimal management of hand OA requires a combination of non-pharmacological and pharmacological treatments that include intra-articular (i.a.) therapy. EULAR experts recommend corticosteroid injections in TMJ OA and underline the usefulness of hyaluronic acid (HA). The aim of this study was the assessment of the efficacy and tolerability of i.a. injections of a hybrid formulation of HA (Sinovial H-L®) in comparison to triamcinolone in patients with TMJ OA.

METHODS:

This 6-months observational comparative study, retrospective analyzed the medical records of 100 patients with monolateral or bilateral TMJ OA, treated with two injections of Sinovial H-L® (Sinovial H-L Group) or of triamcinolone acetonide (Triamcinolone Group). Clinical assessments were recorded at the time of the first and second injection and after one, 3 and 6 months. The primary outcomes were the change in global pain on a Visual Analogue Scale (VAS) and in hand function evaluated by the Functional Index for Hand OA (FIHOA) from baseline to month 6. Secondary outcomes were the improvement of the duration of morning stiffness, Health Assessment Questionnaire (HAQ) and the Medical Outcomes Study 36-Item Short Form (SF-36). The comparison between the two groups of treatment were performed with the Wilcoxon rank-sum test for continuous variables and with chi-square or Fisher exact test for categorical variables. Statistical significance was set at $p < 0.05$.

RESULTS:

Both therapies provided effective pain relief and joint function improvement, but the benefits achieved were statistically significantly superior in the Sinovial H-L Group than the Triamcinolone Group after one month ($p < 0.01$) from the beginning of the therapy and during the 6-months follow-up ($p < 0.001$). Furthermore, Sinovial H-L® was associated with a significant decrease in the duration of morning stiffness and with a significant improvement in the HAQ score and physical component summary (PCS)-SF-36.

CONCLUSIONS:

Our results suggested that the hybrid formulation of HA may be more effective than triamcinolone in pain relief and joint function improvement with a rapid and persistent effect, resulting a valid alternative to steroid in the management of TMJ OA.

Vit. D helps chronic widespread pain

Clin Rheumatol. 2017 Dec;36(12):2825-2833. doi: 10.1007/s10067-017-3754-y. Epub 2017 Aug 15.

Effect of vitamin D supplementation in chronic widespread pain: a systematic review and meta-analysis.

Yong WC¹, Sanguankeo A^{2,3}, Upala S^{2,3}.

Author information

Abstract

Chronic non-specific widespread pain (CWP) including fibromyalgia (FMS) is characterized by widespread pain, reduced pain threshold, and multiple tender points on examination, causing disability and decreased quality of life.

Vitamin D has been proposed as an associated factor in CWP. This meta-analysis aimed to explore the benefit of vitamin D supplementation in the management of CWP. A comprehensive search of the CENTRAL, MEDLINE, and Embase databases was performed from inception through January 2017.

The inclusion criterion was the randomized clinical trials' evaluating the effects of vitamin D treatment in adult subjects with CWP or FMS. CWP was defined as chronic recurrent musculoskeletal pain without secondary causes; FMS patients met the American College of Rheumatology criteria for FMS. Study outcome was assessed using visual analog scale (VAS) of pain intensity. Pooled mean difference (MD) of VAS and 95% confidence interval (CI) were calculated using a random-effect meta-analysis. Meta-regression analysis using a random-effects model was performed to explore the effects of change in vitamin D in the treatment group on difference in the mean of VAS. Sensitivity analysis was performed to evaluate the robustness of results. The between-study heterogeneity of effect size was quantified using the Q statistic and I^2 . Data were extracted from four randomized controlled trials involving 287 subjects. Pooled result demonstrated a significantly lower VAS in CWP patients who received vitamin D treatment compared with those who received placebo (MD = 0.46; 95% CI 0.09-0.89, $I^2 = 48\%$). Meta-regression analysis revealed no significant relationship between the changes of vitamin D and VAS (coefficient = 0.04 (95% CI -0.01 to 0.08), $p = 0.10$).

In this meta-analysis, we conclude that vitamin D supplementation is able to decrease pain scores and improve pain despite no significant change in VAS after increasing serum vitamin D level. Further studies need to be conducted in order to explore the improvement of functional status, quality of life, and the pathophysiological change that improves chronic widespread pain.

Vit C reduces hip fx

Osteoporos Int. 2017 Nov 3. doi: 10.1007/s00198-017-4284-9.

Dietary vitamin C intake and the risk of hip fracture: a dose-response meta-analysis.

Sun Y¹, Liu C², Bo Y¹, You J¹, Zhu Y¹, Duan D¹, Cui H¹, Lu Q³.

Author information

Abstract

The meta-analysis suggested that dietary vitamin C was statistically inversely associated with the risk of hip fracture (overall OR = 0.73, 95% CI = 0.55-0.97, $I^2 = 69.1\%$) and with the increase of 50 mg/day vitamin C intake, the risk of hip fracture will reduce by 5% (OR = 0.95, 95% CI 0.91-1.00, P = 0.05).

INTRODUCTION:

Previous studies had inconsistent findings regarding the association between vitamin C intake and the risk of hip fracture. Therefore, we conducted a meta-analysis to evaluate the association of dietary vitamin C intake and the risk of hip fracture.

METHODS:

Relevant studies were identified by searching PubMed, Embase, and Web of Science up to December 2016. Additional articles were identified from reviewing the reference lists of relevant articles. The summary relative risks (RRs) or odds ratios (ORs) and 95% confidence intervals (CIs) were estimated by random effects model. Funnel plot and Egger's test were used to test publication bias.

RESULTS:

The total six articles containing 7908 controls and 2899 cases of hip fracture were included in this meta-analysis. By comparing the highest versus the lowest categories of vitamin C intake, we found that dietary vitamin C was statistically correlated with the risk of hip fracture [overall OR = 0.73, 95% CI = 0.55-0.97, $I^2 = 69.1\%$]. A linear dose-response association showed that the increase with vitamin C intake of 50 mg/day statistically reduced by 5% (OR = 0.95, 95% CI 0.91-1.00, P = 0.05) the risk of hip fracture.

CONCLUSIONS:

In conclusion, the results of current meta-analysis strongly support that increasing dietary vitamin C intake can decrease the risk of hip fracture. In order to verify the association of vitamin C intake and hip fracture risk, further well-designed largely randomized controlled trials (RCTs) are needed.

Obesity and Vit. D

Endocr Connect. 2017 Oct 31. pii: EC-17-0304. doi: 10.1530/EC-17-0304.

Cardiometabolic healthy and unhealthy obesity: does vitamin D play a role?

Piantanida E¹, Gallo D², Veronesi G³, Dozio E⁴, Trotti E⁵, Lai A⁶, Ippolito S⁷, Sabatino J⁸, Tanda ML⁹, Toniolo A¹⁰, Ferrario M¹¹, Bartalena L¹².

Author information

Abstract

The aim of this observational study was to clarify the link between vitamin D status and metabolic syndrome (MetS) in people with visceral obesity. Design and methods One-hundred-ninety-six consecutive patients (152 women; mean age 51±13 years) with visceral obesity [mean body weight 103±20 Kg, mean waist circumference (WC) 119±13 cm] were enrolled at the Obesity Outpatient Clinic of the University of Insubria in Varese. Anthropometric measurements were recorded. Laboratory tests, including vitamin D [25(OH)D], fasting blood glucose (FBG), lipid profile, liver and kidney function tests were assessed. Vitamin D status was defined according to the European Society of Endocrinology guidelines, MetS to the 2009 harmonized definition. An inverse association emerged among [25(OH)D], body mass index (BMI) (p=0.001) and WC (all p=0.003). Serum [25(OH)D] levels were inversely related to FBG and systolic blood pressure (SBP) (respectively, p=0.01 and 0.02). Median serum [25(OH)D] levels were 13.3 ng/ml (CI 95% 12;15) in MetS and 16 ng/ml (CI 95% 14;18) (p=0.01) in non-MetS patients. Among patients with MetS, lower [25(OH)D] concentrations were related to higher risk of hypertension (HT) [Odds Ratio (OR) 1.7, CI 95%, 0.7;4] and hyperglycemia (IFG)/ type 2 diabetes (OR 5.5, CI 95% 2;14). Vitamin D status and MetS are inversely correlated in visceral obesity, particularly with regard to glucose homeostasis and BP. More extensive studies are required to investigate the potential for causality.

Vit D

J Autoimmun. 2017 Oct 21. pii: S0896-8411(17)30420-1. doi: 10.1016/j.jaut.2017.10.001.

Decreased sensitivity to 1,25-dihydroxyvitamin D3 in T cells from the rheumatoid joint.

Jeffery LE¹, Henley P², Marium N², Filer A³, Sansom DM⁴, Hewison M⁵, Raza K⁶.
Author information

Abstract

1,25-dihydroxyvitaminD₃ (1,25(OH)₂D₃), has potent anti-inflammatory effects, including suppression of IL-17 + and IFN γ + T cells implicated in rheumatoid arthritis (RA), but efficacy at the site of active disease is unclear.

To investigate this, T cells from synovial fluid (SF) and paired blood of patients with active RA were studied. 1,25(OH)₂D₃ had significantly less suppressive effect on Th17 cells (IL-17+IFN γ -) and Th17.1 cells (IL-17+IFN γ +) from SF compared to those from blood, and had no effect on SF CD4⁺ or CD8⁺ IFN γ + T cell frequencies. Memory T cells (CD45RO+) predominate in SF, and 1,25(OH)₂D₃ had less effect on memory T cells relative to naïve (CD45RA+) T cells. RT-PCR and flow cytometry showed that this was not due to decreased expression of the vitamin D receptor or its transcription partners in memory T cells. Further studies using stimulated CD4⁺ T cells sorted according to IL-17 and IFN γ expression confirmed the ability of 1,25(OH)₂D₃ to suppress pre-existing cytokines. However, 1,25(OH)₂D₃ was most effective at suppressing de novo IL-17 and IFN γ induction. Correspondingly, T cell responses to 1,25(OH)₂D₃ correlated directly with capacity for phenotype change, which was lower in cells from SF compared to blood.

These findings indicate that anti-inflammatory effects of 1,25(OH)₂D₃ in active RA are impaired because of reduced effects on phenotype-committed, inflammatory memory T cells that are enriched in SF. Restoration of 1,25(OH)₂D₃ responses in memory T cells may provide a new strategy for treatment of inflammatory diseases such as RA.

Caffeine and kidney disease

Caffeine may benefit patients with chronic kidney disease

Reuters Health News | November 07, 2017

An observational study suggests a dose-dependent protective effect of caffeine consumption on death from any cause in patients with chronic kidney disease (CKD). An inverse relationship between coffee consumption and mortality has been reported in the general population, including a large European study published in *Annals of Internal Medicine* last August. “However, the association between caffeine consumption and mortality in patients with CKD remains unclear,” study investigator Dr. Miguel Bigotte Vieira, from Centro Hospitalar Lisboa Norte in Portugal, told Reuters Health by email. Using the continuous National Health and Nutrition Examination Survey (NHANES) data (1999-2010), the study team examined the association between different quartiles of caffeine consumption and mortality in 2,328 patients with CKD. One 8-ounce cup of coffee contains roughly 95 mg of caffeine and 1 serving of espresso (1 oz) contains about 60 mg of caffeine. Considering this, the first quartile corresponds to approximately less than a third of a cup of coffee/day; the second quartile to about one-third to 1 cup of coffee/day; the third quartile to between 1 and 2 cups of coffee/day; and the fourth quartile to more than 2 cups/day, Dr. Bigotte Vieira explained. The researchers determined mortality status and cause of death using NHANES-linked National Death Index files through the end of 2011. A clear dose-dependent inverse association between caffeine and all-cause mortality was observed in patients with CKD. Compared to those in the lowest quartile of caffeine consumption, those in the second, third, and highest quartiles had 12%, 22%, and 24% lower risks of dying from any cause. “This association was independent of influential factors including age, gender, race, annual family income, education level, estimated GFR, albumin/creatinine ratio, hypertension, smoking status, dyslipidemia, BMI, previous cardiovascular events, and diet: consumption of alcohol, carbohydrates, polyunsaturated fatty acids, and fibers,” Dr. Bigotte Vieira told Reuters Health. He cautioned, however, that this observational study “cannot prove that caffeine reduces the risk of death but only suggests the possibility of such a protective effect.” Nonetheless, the data suggest that “advising patients with CKD to drink more caffeine may reduce their mortality (and) would represent a simple, clinically beneficial and inexpensive option in CKD patients,” the researchers conclude in their poster, presented November 3 at Kidney Week 2017, hosted by the American Society of Nephrology. —Megan Brooks

62 B. CRYOTHERAPY**Comparisons**

Scand J Med Sci Sports. 2017 Nov 11. doi: 10.1111/sms.13014.

Cold-water or partial-body cryotherapy? Comparison of physiological responses and recovery following muscle damage.

Hohenauer E^{1,2,3}, Costello JT⁴, Stoop R¹, Küng UM², Clarys P³, Deliëns T³, Clijisen R^{1,2,3}.
Author information

Abstract

The aim of this study was to compare i) the physiological responses following cold-water immersion (CWI) and partial-body cryotherapy (PBC) and ii) the effects on recovery following a muscle-damaging protocol (5 x 20 drop jumps).

Nineteen healthy males were randomly allocated into either a CWI (10 °C for 10 min; n = 9) or a PBC (-60 °C for 30 sec, -135 °C for 2 min; n = 10) group. The physiological variables (thigh muscle oxygen saturation [SmO₂], cutaneous vascular conductance [CVC], mean-arterial pressure [MAP] and local skin temperature) were assessed immediately prior and up to 60 min post-treatment (10 min intervals). The recovery variables (thigh muscle swelling, maximum voluntary contraction [MVC] of the right knee extensors, vertical-jump performance [VJP] and delayed-onset of muscle soreness [DOMS]) were measured immediately prior and up to 72 h post-treatment (24 h intervals).

Compared to PBC values, CVC (at 30 min), SmO₂ (at 40 min) and lower extremity-skin temperature (thigh/shin at 60 min) were significantly reduced in the CWI group after the treatment (all p < 0.05).

Only lower extremity-skin temperature was significantly reduced in the PBC group directly post-treatment (all p < 0.05). MAP significantly increased in both groups after the treatments (both p < 0.05). DOMS did not differ between groups. MVC and VJP returned to baseline in both groups after 24 h (p > 0.05). CWI had a greater impact on the physiological response compared to PBC.

However, both treatments resulted in similar recovery profiles during a 72 h follow-up period. This article is protected by copyright. All rights reserved

65. NEUROLOGICAL CONDITIONS**MS comorbidity**

Neurology. 2017 Nov 8. pii: 10.1212/WNL.0000000000004716. doi: 10.1212/WNL.0000000000004716.

Comorbidity increases the risk of relapse in multiple sclerosis: A prospective study.

Kowalec K¹, McKay KA¹, Patten SB¹, Fisk JD¹, Evans C¹, Tremlett H¹, Marrie RA²; CIHR Team in Epidemiology and Impact of Comorbidity on Multiple Sclerosis (ECoMS).

Collaborators (9)

Author information

Abstract

OBJECTIVE:

To evaluate the association between comorbidity and relapse rate in individuals with multiple sclerosis (MS).

METHODS:

We recruited individuals with prevalent relapsing-onset MS from 4 Canadian MS Clinics to participate in a 2-year prospective multicenter cohort study involving cross-sectional assessment of comorbidities and relapses. Comorbidities were recorded using questionnaires, and relapses were captured from medical records at each visit. The association between comorbidities at baseline and relapse rate over the subsequent 2-year follow-up period was examined using Poisson regression, adjusting for age, sex, disability, disease duration, and treatment status.

RESULTS:

Of 885 participants, 678 (76.6%) were women, averaging age 48.2 years at baseline. Anxiety (40.2%), depression (21.1%), hypertension (17.7%), migraine (18.1%), and hyperlipidemia (11.9%) were the most prevalent comorbidities. The frequency of participants experiencing relapses remained constant at 14.9% and 13.2% in years 1 and 2 post-baseline. After adjustment, participants reporting ≥ 3 baseline comorbidities (relative to none) had a higher relapse rate over the subsequent 2 years (adjusted rate ratio 1.45, 95% confidence interval [CI] 1.00-2.08). Migraine and hyperlipidemia were associated with increased relapse rate (adjusted rate ratio 1.38; 95% CI 1.01-1.89 and 1.67; 95% CI 1.07-2.61, respectively).

CONCLUSIONS:

Individuals with migraine, hyperlipidemia, or a high comorbidity burden (3 or more conditions) had an increased relapse rate over 2 years. These findings have potential implications for understanding the pathophysiology of MS relapses, and suggest that closer monitoring of individuals with specific or multiple comorbidities may be needed. Future research is needed to understand if the presence of comorbidity warrants a tailored approach to MS management.