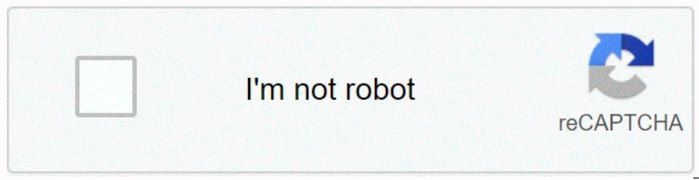

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Fatigue after stroke the patients perspective

Educational protocols for POSITIF, a randomized multi-point feasibility trial of short cognitive behavioral intervention. Gillespie DC, Barber M, Brady MC, Carson A, Chalder T, Chun Y, Cvoro V, Dennis M, Hackett M, Haig, House A, Lewis S, Parker R, Wee F, Wu S, Mead G. Gillespie DC, et al. Pilot Feasibility 2020 June 15, 2018 at 06.84 AM Doi: 10.1186/s40814-020-00622-0 eCollection 2020. Pilot Feasibility Stud 2020 PMID: PmC article free 32549995 Fatigue is fatigue that is not related to the enthusiasm you get and does better with relaxation. Fatigue is very common after a stroke, whether your stroke is mild or severe. There are many things you should check with your doctor and how to manage fatigue. Fatigue is a feeling of fatigue, fatigue or lack of energy. Fatigue can be taken by activity, but it can occur even if you are not particularly active. Fatigue after stroke is not better by the rest. Fatigue is very common after a stroke, with about half of the survivors experiencing it. Fatigue can affect anyone, no matter how severe or severe their rhythms are. It tends to start in the first week after a stroke, but for some it can start a month later. For most people the fatigue will improve by the time, however it is difficult to predict. Remember that fatigue can last longer than you expect, especially if you plan to return to work. The cause of fatigue, the cause of fatigue after a stroke is not clear. After a stroke, physical and mental activity may require more effort, causing fatigue. Poor sleep pain and breathing problems during sleep can also lead to fatigue while fatigue is different from depression, symptoms of depression may include feeling tired. Some medications taken after a stroke can lead to fatigue. Malnutrition can also lead to fatigue, managing fatigue is important to monitor and manage what may cause your fatigue. Talk to your doctor about your pain, sleep problems and mood. Also ask about medications and malnutrition that may be conducive to fatigue. Balancing your activity and relaxation, listening to your body and respecting the underscore. Understanding what makes things worse and when it is most likely to happen will help. Work everyday in a way that uses less energy, such as sitting down to dress up. Plan activities when you have the most energy Divide the activity into smaller tasks and stay in between. Try distributing events throughout the day or week and planning a break. You may choose to prioritize the activities and activities that matter most to you. If you are planning to return to work, try starting part-time and increasing your hours gradually, perhaps pushing through fatigue to complete your body or mind. It can help recover, however more research is needed. Understanding your body and the affecting fatigue you will help you decide on how many to push. Gently pushing is probably the best, since excessive pushing can make fatigue worse. Exercise, diet and sleep research suggest exercise may help reduce fatigue. Even if you're tired, exercise each day. Try avoiding alcohol, which is a sedative. Getting up at the same time every day and getting morning sun. Exposure to light when you first wake up helps set your body clock. If you want to take a quicker nap in the afternoon and try to keep it for 20 minutes in the evening, don't ignore the fatigue. Talk to family and friends, fatigue after a stroke is not always well understood in the community, and signs of fatigue are not always clear to others. Family and friends may not understand why you can't do things or attend events. It can help if you educate people around you about fatigue. If someone offers you help, consider getting it, rather than feeling like you have to do everything yourself. Additional health professional assistance at StrokeLine provides information, support advice and referrals. StrokeLine's helpful and confidential advice will help you manage your health better and live a good life. Call 1800 STROKE (1800 787 653) email strokeline@strokefoundation.org.au join Australia's online stroke community with video, document, facts, resources and support for stroke survivors, their families and friends. enableme.org.au Meet a Occupational Therapist: Occupational Therapists Australia 1300 682 878 www.otaus.com.au AbstractAt at least half of all stroke survivors suffer from fatigue; This scientific statement provides an international perspective on the emerging evidence surrounding the prevalence, prevalence, quality of life and complex pathogens of post-stroke fatigue. Evidence for pharmacological and nonpharmacological interventions for management has been examined, as well as the effects of posttroke fatigue on both stroke survivors and caregivers. Fatigue is a common and often debilitating sequela of both ischemic stroke and bleeding. Worldwide, there are ≈33 stroke survivors. 1 million people and at least half of these individuals suffer from fatigue.2 The goal of this scientific statement is to provide an international perspective on current understanding of the prevalence of quality of life. The survey of pharmacological and non-pharmacological methods of management, including the effects of PSF on both strokes. and moderators. A key analysis of published quantitative research and guidelines on fatigue after a stroke was carried out. Searchable databases include PubMed, CINAHL, MEDLINE and PsycINFO search terms, including posttroke fatigue, fatigue, chronicfatigue, fatigue, and more. Incidence, prevalence, caregiver, biomarker, ecology, intervention, patient education materials, and pharmacological interventions. Analysis related to the review of abstract titles and full-text articles related to topics with the following aggregate criteria: (1) (2) related to human subjects; Published from January 2000 to March 2016 (4) used quaasi-trial, experimental, observational research or randomized clinical trials (RCT) (5) related to the subject of fatigue after ischemic stroke or bleeding; and (6) performed in any part of the ongoing stroke of care (acute hospital, inpatient rehabilitation, home care, long-term care). Additional quantitative research is identified from the reference list of publications that have found the search criteria listed above. In an overview of PSFThere, there are several ways to determine and measure fatigue. The most common definitions include: a lack of physical and mental energy perceived by a person or caregiver to interfere with normal and desired activities. 4 Feelings of exhaustion, lack of energy or fatigue, differing from sadness or weakness. Fatigue is derived from symptoms of depression, but there is no consensus among doctors or researchers in one definition of PSF when considering the definition of fatigue, many and different, estimating its incidence (first reporting fatigue associated with stroke attacks) and prevalence (the number of stroke survivors experiencing fatigue at the time. at any point) varies. Reliable reports of incidences are not present in the literature. One of the oldest studies on PSF estimated the incidence to be 75%.6 this study, however, did not provide a definition of fatigue and estimated only 44 people who were 3 to 24 months after a stroke and therefore more likely to provide better estimates of prevalence than incidence. In the comments, the prevalence estimate for the PSF range is from 23% to 77%.7-11, since different definitions and scales using meta-analysis are limited. One systematic examination of a person with a temporary ischemic attack and a small stroke. Little estimates the prevalence of psf pool to be Although there were no data on stroke severity, with >3000 subjects represented in the investigation, it can be assumed that more than a temporary ischemic attack and minor stroke, which could be one possible explanation of the wide prevalence, with >3000 subjects represented in the investigation, can be assumed to be more than a temporary ischemic attack and minor stroke, which could be one possible explanation of the wide prevalence of Lynch and colleagues.13 Establish a case definition of PSF based on interviewing stroke survivors in the initial stages and recovery. These definitions are as follows: For hospital patients: Due to stroke, patients experience fatigue, lack of energy or increased need to rest every day or almost daily, and this fatigue leads to difficulty engaging in everyday activities (for patients in this may include therapy and may include the need to terminate prior activities due to fatigue). For patients living in the community: In recent months, there have been at least 2 weeks of time when patients experience fatigue, lack of energy or increased need to rest every day or almost daily, and this fatigue leads to difficulty engaging in everyday activities.13 With this definition, the prevalence of PSF is expected to be 40% after stroke.13 PSF is associated with female and emotional distress.13In In conclusion, there is no consensus among doctors or researchers in the best definitions of PSF, consensus definitions will lead to more accurate estimates of incidence and prevalence. The effect of PSF on QOLPSF negatively affects the patient's daily activities, such as decreased participation in physical activity and rehabilitation.15 Patients with PSF were reported to have poor neurological recovery and mortality rates increased.16 Patients with PSF had difficulty returning social, familial, and professional activities4 and had a low QOL score of .16,17 The relationship between PSF and daily activities is partly mediated by associated depression or neurological deficits, even after controlling depression18 fatigue is a major health-related factor associated with QOL.17, for example, one study reported that although PSF was strongly associated with low scores in the Physical Health Composite of QOL, depression was associated with low scores in non-physical composite scores.17 Researchers, patients and caregivers at PSF are important because the effect of QOL.14,19 suggests that QOL measures are included in the ongoing PSF study. The multitude of PSFEvidence indicates that psf's causes are multi-varied. Studies have examined the interaction between demographic factors, neurological/physical deficits, comorbidities, and other factors. Medical, smoking, medication, sleep disturbance, pain, prestroke fatigue, depression and anxiety, cognitive impairment, and PSF. The study reported that PSF was associated with ages 16,20-25 and 8, and the study reported that PSF was associated with 17,19,20,25-29 females. Determining demographic contributions to the prevalence of PSF is complex because the prevalence of fatigue is higher in the elderly and women in general. It is important to note that most reported studies do not include controlled subjects (e.g. individuals of matching age and gender without stroke). The level of education is not related to PSF.14, 21,26–28,30–34 PSF It may be less common in married people (compared to single people) and in those living at home (compared to those who live in institutions),1 6, but these findings have not been widely replicated.20,21,24,30 Patients with PSF are more likely to be unemployed or more likely to change their jobs than those without PSF,14,21, but the cause and effect relationship remains unclear. Patients with PSF were less likely to return to their previous work, 21,22,29,34 physiological/physical impairments and functional deficits were a major contributor to PSF.14,16,21,35,36 patients who suffered from stroke fatigue than patients who suffered from stroke fatigue. 16,37 Temporary ischemic attacks, Infarct doses and functional recovery (as defined by the Modified Rankin Scale) did not appear to predict PSF,38, but because the study generally excluded patients with strokes that led to lower levels of consciousness or severe aphasia, 14,39 were not expected to be severe. These results must be interpreted with caution. In many of these studies, at least some of PSF can be attributed to associated depression; for example, the relationship between physical disability and PSF in subacute phases disappeared after controlling the effects of depression and anxiety in the long-term 22,30 motor disorders, speech disturbances, 40,41 (severe aphasia or dysarthria), 14,16 palsy. The face, 35 and 35 weak arms are all associated with PSF, a systematic examination of the effects of a wide range of neurological deficits in PSF, however rare. Comorbidities doctors, smoking, and medications for patients who suffer from stroke have comorbid medical conditions such as high blood pressure, diabetes, heart failure, and kidney disease that may produce fatigue on their own.42–44 The influence of such diverse comorbidities on PSF has not been adequately monitored. One study reported that PSF is more common in stroke patients with high blood pressure or hypertension,40 However, this finding is not replicated in other studies.14,17,26,45–48 The relationship between diabetes and PSF was observed in 121 studies, but not in 7 other studies.45–48 14,16,26,27,45,46,48 The presence of heart disease was associated with PSF in 2 studies of 17,27, but not in 4 of the other 14,47,49,500 generally, smoking was not considered a risk factor for PSF, as reported in 3 studies.21,24,277 One study reported that 14 suggested that sudden abstinence may lead to PSF.51Medications commonly used in patients with stroke such as 27 antidepressants, 45,52 antidepressants and hypnotics17 may cause fatigue although studies do not involve medications as a major cause of PSF, 14,34,47 potential associations should not be ignored. Difficulty eating associated with cranial nerve palsy decreases poor attention and loss of appetite53-55 and malnutrition56 is common in patients with stroke. Although patients with difficulty eating poststroke often reported feelings of depression 56,57 and lack of energy, 58 people were more likely to experience depression. One study reported that patients with PSF more often had lower appetite than those without, 14 percent of whom had no appetite. Suggest possible relationships. Sleep disturbances associated with breathing disturbances (Sleep Apnea Index ≥10) In 50% to 70% of stroke patients, 59 Hypersomnia and excessive daytime sleepiness are observed in 27% of patients, 59, while insomnia occurs in 57% of patients in the early months after stroke.60 PSF was associated with sleep disturbances 21,26,31,35,50,61–63 and daytime sleepiness46,63–65 in many studies, However, these associations have not been consistently demonstrated. The role of sleep disturbances as they relate to PSF is therefore still uncertain. Two studies reported a correlation between postpartum pain and PSF,67,68, but this association was not confirmed in two other studies, 33,35 studies reported that fatigue was present in 53% of patients with central postpartum pain and in 61% of those with nasal pain and it was associated with both conditions of 66, although postpartum fatigue seemed to be more closely associated with fatigue than depression.52,96 26Prestroke FatigueSeveral studies reported a correlation between prestroke fatigue and PSF.14,16,27,31,45,70, one study reported in patients. The severity of fatigue increased after stroke and PSF was more severe than in patients without prestroke fatigue14, the study said with an inherent bias. However, due to prestroke fatigue, it is assessed in a retrospective manner. There have been reports that Prestroke fatigue is a risk factor for stroke, and patients with prestroke fatigue are more likely to have medical comorbidities than those without prestroke fatigue.14 It is possible that prestroke fatigue may, at least partially, be attributed to premorbid medical conditions that increase the risk of stroke such as diabetes or heart disease. Depression and anxiety patients with PSF often The relationship between PSF and depression is difficult to assess because many tools for assessing depression have a list about fatigue. Fatigue is one of the most powerful symptoms of high discrimination for predicting depression. Depression 22 appears to play a more important role in the long-term stage of stroke.76 Many studies report a correlation between PSF and anxiety,13,16,21,22,32,32,45,46,77 Even in those studies that found a correlation between anxiety and fatigue , association softened after controlling depression10, moreover, poor coping patterns were associated with PSF.20,79Although 21. First, PSF is more prevalent than postpartum depression, so there are patients with fatigue who are not depressed. One study found that only 38% of patients with PSF depressed for 40 seconds, pharmacological therapy for postpartum depression was ineffective in treating SF. Although it improves depression.80,81 Finally, PSF It seems to be associated with tissue injury because fatigue is more common in individuals with completely recovered infarction, while posttroke depression occurs similarly among individuals with temporary ischemic attacks and no tissue injuries, and those with inconsistencies and complete recovery39 this suggests that PSF occurs as a result. Biochemical changes precipitate from tissue injury, while depression tends to be associated with the psychological aspects of the event. Many of these studies of cognitive impairment failed to find a correlation between cognitive impairment and PSF.21,30,62,77,78. What's more, patients with severe cognitive impairment or aphasia are generally excluded in the PSF.14,37Evidence study, showing that cognitive impairment, mental impairment and difficulty in concentration may lead to decreased psf mental energy. 22 others found that processing speed was associated with mental fatigue at 3 and 6 months after 34,83,84 strokes and psf-related memory disorders at 6 months after stroke.34, so even if PSF is unlikely to be associated with general cognitive impairment. Management functions, memory, etc.) may be related to certain components (mental) of PSF in summary. Research with strict design suggests understanding more complex interactions among demographic factors, neurological/physical deficits, medical comorbidities, smoking, medications, sleep disturbances, pain, fatigue, prestroke, depression and PSF, and PSF. In a neutral manner, it is necessary to determine how these factors play into PSF. Unknown pathology of PSF pathology of PSF the factors mentioned include the excitement of the brain membrane, wound position, inflammation, immune response, and genes. Changes in the exertion capacity of the cortex and Lesion LocationLines of the inquiry suggest that PSF is a medium and not an expression of neurological disorders. Some researchers theorize that PSF may be associated with interference in the excitement of the neck membrane. One study examining patients after a stroke with the least neurological deficit85 found that PSF had been explained, in part, by a higher motor threshold measured with magnetic stimulation. It suggests that the low excitement of the whole output. Some researchers believe that disruption of key central pathways leads to perceived fatigue, although there is little data to support this view. There is little credible evidence linking PSF to 77,86 specific wound positions, some studies suggest a correlation between PSF and subcortical infarcts26,74,87,888 and infratentorial infratentorial infarcts.30,77. It appears to be associated with low excitement of corticospinal output and synaptic inputs facilitated by the cortex and subcortical.85 impaired motor control site, as assessed by the Fugl-Meyer test, seems to be the prediction of PSF.41Inflammation, immune response, and genesis role for inflammation in the genesis of PSF is relevant. Firstly, fatigue is a common symptom in patients with immunotherapy 89-93 seconds, fatigue occurs in healthy individuals who develop infections.94,95 Third, cytokine administration announced to healthy individuals leads to 96 perceived fatigue, eventually adjusting inflammation with cytokine opponents, increasing fatigue in many diseases. Most efforts to identify PSF biological markers are based on small groups of patients and have serious systemic problems. For example, interleukin (IL)-1β increased IL-1 antagonist receptors and decreased IL-9 at onset of stroke was linked to the onset of PSF.47. Other significant severity, age, or co-variance However, essentially, if fatigue is caused by cytokine, cytokine should be measured at the time of assessment of fatigue, not at the time of acute stroke. When the biomarker assessment is done in conjunction with the protein fatigue assessment, the biomarker is the same as the protein fatigue assessment. C-reactive is widely reported to be associated with PSF.103-105 These studies are relatively small, however, and large-scale studies that regulate for underlying comorbidities and stroke traits are sufficiently needed to deal with the relationship between C-reactive proteins and THE PSF the assessment of genetic contributions to PSF is relatively immune timing to PSF, and it appears that single-nucleotide polymorphisms in genes modulate inflammation are associated with PSF, specifically. PSF is associated with the C allele of IL1RN rs4251961.38 This single-nucleotide polymorphism is commonly associated with a decrease in IL-1 receptor antagonist and an increase in proinflam Matory cytokines such as IL-1β and C-reactive protein.106,107 In addition, functional polymorphisms in the gene for toll-like receptor 4 that render toll-like receptor 4 less Responsive to its ligands are associated with less PSF.38Another possible biochemical link to PSF is glutamate.108 In a small study, plasma glutamate levels in the week after minor stroke correlated with the degree Of fatigue at 6 months after stroke.109 Glutamate is an excitatory neurotransmitter that is released after stroke ,110, but inflammation leads to significant changes in neurotransmitter metabolism.111–113 These data suggest that the majority of PSF causes are associated with and share the immune system.114–114–1116 biomarkers Additional measurements in the acute phase and linked to later development of fatigue include glucose 47,48 and homocysteine.48Table 1 provide a summary of biomarker research conducted to determine PSF Table 1. Summary of Biomarker research conducted to determine PSFBiomarkerBiomarker Description / Features of Blood SampleFatigue ScaleRelationship to PSFnCommentsGlutamateExcitatory Amino Acids / Neurotransmitters, Acute Stroke immunity (within 1 wk)Chalder Fatigue ScaleIncreased PSF at 6 o'clock after stroke, published only in abstract form 109IL-1βProinflame cytokine Acute stroke (within 72 hours)FSSIncreased PSF at 6 mo after stroke45Small cohort; Inhibits acute stroke inflammation (within 72 hours) FSSDecreased PSF at 12 mo after stroke45Small cohort; 12 mo after stroke45Small cohort; d After stroke on set214 time frame early for determining the appearance of SF; 48at Acute stroke severity (stroke) Within 72 hours) Fssin CREASED SF 6 and 12MO after stroke 45small cohort; Uncontrolled for the severity of

stroke, depression47homocysteineAmino; Higher levels associated with vascular diseaseConcomitant with PSF assessment(10-15 d after the onset of stroke)FSSIncreased PSF In 10-15 d after stroke214Early time frame for determining the presence of PSF; In 3 mo after stroke28Significant only after excluding those with prestroke fatigue and mood disorders; Small sample size 103concomitant with PSF rating fasno association in the year after stroke 65 is part of a large study 48Vcam-1 moleculeadhesion shown on blood vessels; bind lymphocytesConcomitant with PSFFASDecrad PSF assessment in the year after stroke 40Small cohort104ILRN1 rs4251961C allelegene C allele associated with reduced production of IL-1ra and increased inflammation NAFASIncreased PSF In the year after the sample size stroke39Small; In the years after the sample size stroke39Small; few patients with polymorphisms38Given, the limitations of research done to date, it is clear that no clear biomarkers have been identified for PSF. In assessing patients, there are concerns about the best tools to measure PSF patient reports, pharmacological and non-pharmacological management of PSF is complex. All instruments have been developed to measure fatigue in conditions other than stroke. Measures that include questions about general impotence may not be correct for stroke due to weakness after stroke, generally caused by hemiparesis rather than fatigue.117Table 2 Provides a description and assessment of the reliability and accuracy of general fatigue measures and examples of studies in which these measures are applied to patients after a stroke 17,117-120 Table2 Summary of commonly used fatigue measuresMeasureDescriptionReliityValiditySpecific With strokefas10-item self-rating scale for individual methods ให้ความรู้สึกกับมาตราส่วน Likert 5 จุดตั้งแต่ 1 (ไม่เคย) ถึง 5 (เสมอ) Cronbach α = 0.58–0.62117ตรวจสอบความถูกต้อง=0.71 (<0.001), n=52117Systematic review= reported= fas= used= in= 4= studies= of= psf12fatigue= impact= scaleself-report= measure= of= the= presence= and= severity= of= fatigue= and= its= impact= on= cognitive,= physical,= and= psychosocial= functions118internal= consistency=0.93119Concurrent: sickness= impact= profiletested= in= 60= community-dwelling= patients= after= stroke118discriminative:= significant= difference= between= scores= of= patients= with= ms= and= hypertensives119fss10-item= self-rating= scale= for= how= a= person= has= felt= in= the= past= week= using= a= 7-point= likert= scaleinternal= consistency=0.88–0.95119Construct: factor= analysis= using= oblique= rotation= verifiedsystematic= review= reported= fss= used= in= 24= studies= of= psf12convergent:= pearson= correlation= with= maf= (r=0.74,></0.001),> <0.05), vas-f= (r=0.37,></0.05) ,> <0.05), and= rhoten= fatigue= scale= (r=0.03, p=>0.05)119 มาตราส่วนความวิทย์ของ 36 รายการสั้น Form4-รายการระดับคะแนนตนเองสำหรับวิธีการที่บุคคลรู้สึกในอดีต 4 wkCronbach α =0.76–0.78117ความถูกต้องConstruct =0.58 (<0.001), n=55117Tested in= 55= patients= with= stroke117multidimensional= fatigue= symptom= inventorytotal=16 items;= 14= items=100 mm= vas;= 2= items=multiple choicecronbach= α=0.91–0.93117Construct validity=0.47></0.001),> <0.001), n=55117Tested in= 55= patients= with= stroke117fatigue= domain= from= profile= of= mood= states6-item= self-rating= scale= for= how= a= person= has= felt= in= the= past= weekcronbach= α=0.88–0.89117Construct validity=0.75></0.001),> <0.001), n=55117Systematic review reported use in 1 study12,117Although clinicians acknowledge the need to assess for PSF, there is no consensus on which tool to use and when to use it. A systematic review reported that the Fatigue Severity Scale has been used in 24 studies of PSF (Table 2).12 The review of 24 studies revealed that when PSF was measured varied widely, but several studies provided comparison data at 3 and 6 months.12The link between PSF and depression is acknowledged in the national stroke guidelines from Scotland, which state that patients with PSF should be screened for depression, but there is no mention of exact frequency and timing.15 Lynch and colleagues13 created case definitions for PSF based on interviews with hospitalized and community-dwelling patients. These case definitions may be useful for clinicians. In review, it is suggested that clinicians use the most commonly used scale, the Fatigue Severity Scale, or the case definitions created by Lynch and colleagues13 to screen for depression when assessing for PSF. It makes sense to assess at the time of discharge from acute care and then on a regular basis such as at 3 months, 6 months, 1 year and then yearly. This will not only help with case finding but advance research and provide comparison data for these time points.12Pharmacological InterventionAs a result of the multifaceted nature of PSF, the n=55117Systematic review= reported= use= in= 1= study12,117although= clinicians= acknowledge= the= need= to= assess= for= psf,= there= is= no= consensus= on= which= tool= to= use= and= when= to= use= it.= a= systematic= review= reported= that= the= fatigue= severity= scale= has= been= used= in= 24= studies= of= psf= (table= 2).12= the= review= of= 24= studies= revealed= that= when= psf= was= measured= varied= widely,= but= several= studies= provided= comparison= data= at= 3= and= 6= months.12the= link= between= psf= and= depression= is= acknowledged= in= the= national= stroke= guidelines= from= scotland,= which= state= that= patients= with= psf= should= be= screened= for= depression ,= but= there= is= no= mention= of= exact= frequency= and= timing.15= lynch= and= colleagues13= created= case= definitions= for= psf= based= on= interviews= with= hospitalized= and= community-dwelling= patients.= these= case= definitions= may= be= useful= for= clinicians.in= review,= it= is= suggested= that= clinicians= use= the= most= commonly= used= scale,= the= fatigue= severity= scale,= or= the= case= definitions= created= by= lynch= and= colleagues13= to= screen= for= depression= when= assessing= for= psf.= it= makes= sense= to= assess= at= the= time= of= discharge= from= acute= care= and= then= on= a= regular= basis= such= as= at= 3= months,= 6= months,= and= 1= year= and= then= yearly.= this= will= not= only= help= with= case= finding= but= advance= research= and= provide= comparison= data= for= these= time= points.12pharmacological= interventionas= a= result= of= the= multifaceted= nature= of= psf ,= the=></0.001), n=55117Systematic review reported use in 1 study12,117Although clinicians acknowledge the need to assess for PSF, there is no consensus on which tool to use and when to use it. 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It sense to assess at the time of discharge from acute care and then on a regular basis such as at 3 months, 6 months, and 1 year and then yearly. This will not only help with case finding but advance research and provide comparison data for these time points.12Pharmacological InterventionAs a result of the multifaceted nature of PSF, the > </0.05),> </0.05),> PSF management is far from satisfactory ogden and colleagues121 reported that tirilazad mesylate, a neuronal block agent, is effective in treating fatigue in randomized controlled trials. However, the generalization of the study is limited because it only includes female patients with subarachnoid bleeding and how concealed allocation is questionable.121,122Modafinil, The drug was originally used for patients with hypersomnia or narcolepsy to promote alertness, psf relief in patients with diencephalic stroke better in stroke patients.123 The different effects of modafinil in stroke may be due to the fact that fatigue in these patients is the result of systemic disorders. Activated reticular. This study, however, did not control a placebo, and the total number of patients was small (n=40). randomized trials, blindness, placebo-controlled treatment of PSF with 400 mg modafinil for 90 days were carried out. General fatigue scores, no difference between groups, modafinil groups received better scores on fatigue severity levels (P=0.02), which was the result. No serious adverse reactions. However, the trial was relatively small (including 41 patients 21 who received modafinil) and had to be interpreted as a pilot study. It acts as a dopamine stabilizer that may counter the effects of excessive or inadequate dopamine transmission. Although patients with PSF in this study showed tolerance to it, this drug apparently required further studies because the sample size was small (n=6) and it was not a randomized controlled trial.125Selective serotonin Inhibition of absorption has been tried. One group of researchers examined the efficacy of fluocene in patients with PSF.80 in two trials of blindness, a placebo-controlled placebo conducted in 83 patients with PSF found that fluoxetine was not effective in improving PSF, although it improved depression and other emotional disorders in these patients. Similarly, another study showed that duloxetine, citalopram and sertraline did not alleviate PSF (although duloxetine is more effective in treating anxiety than other medications 2). Vitamin supplements have been reported to be effective in relieving Although the data is not enough to sum up the company.126–129 Candidate vitamins are vitamin B12, vitamin B1, and idebenone, the synthetic coenzyme Q10 analogue. One observational study reported that vitamin B12 deficiency is associated with fatigue in lacunar stroke, and vitamin B12 supplementation may be effective in treating fatigue in these patients.126 One small trial reported that enerion, a synthetic derivative of vitamin B1, was effective in reducing PSF,127 and a recent case report revealed the efficacy of high vitamin B1 in PSF relief, although the sample size was very small (n=3)128 idebenone antioxidants, synthetic coenzyme Q10 analogues, were reported to be effective in administering PSF.122,129 without these experimental adequate uses of energy, and not any of them randomly controlled randomized controlled. Traditional Chinese herbs such as Astragalus membranaceus may be effective in treating PSF.130Astragalus membranaceus, consisting of a variety of substances, including saponin, polysaccharide and flavonoids that have been reported to be anti-inflammatory. Antimicrobial stress, immunity, and heart protection effects through numerous signaling pathways in organs and critical systems 131 Efficacy of Astragalus membranaceus for PSF treatment is evaluated in a random, placebo-controlled, double blind trial.130 A randomized placebo-controlled and blind trial is required with sufficient sample size. Physiological interventions have no evidence for nonpharmacological interventions in patients with PSF interventions, including general recommendations for patients and caregivers for dealing with PSF and patient education materials. InterventionsSeveral's international guidelines, including the subject of the American Heart Association PSF/American Stroke Association, say that PSF may be exacerbated by sedentary lifestyles and promote routine exercise.132 Exercise Programming Guidelines for Stroke Survivors listed in the guidelines, and there are recommendations that regular exercise may help reduce PSF.132 adult stroke rehabilitation guidelines and recovery, suggesting aerobic exercise is a way of reducing PSF.133. These guidelines state that stroke survivors and caregivers should be given information about fatigue and education, as well as potential management strategies such as exercise. Creating a good sleep pattern and avoiding sedating pills and excessive alcohol134 A Cochrane The review provides a comprehensive review of experimental PSF interventions, including nonpharmacological intervention 2 fatigue education programs. Mindfulness-Based Stress Reduction Program122 There is insufficient evidence about the effectiveness of any intervention. In the treatment or prevention of PSF, it is labeled as small and different, and some people are at high risk of bias. In clinical practice, adaptive factors such as depression and anxiety, sleep or eating, pain disturbances and medications that stimulate fatigue should be appropriately identified and administered. Although many of the interventions described in the investigation have been recorded as possible in people with stroke, their effectiveness must be validated in research by designing strong studies such as RCTs and driven by sufficient sample sizes. There are three patient study materials on psf located, one from the American Heart Association/American Stroke Association, 135. Another, from the National Stroke Association, 136 and a third from the UK Stroke Association.137 All of the patient study materials to date, and one from the American Heart Association/American Stroke Association has been updated every 2 years since 2012. And easily accessible on the Internet, no one can recommend it for use because they are not evidence. In summary, there are slightly promising nonpharmacological interventions and patient education materials available for PSF, both areas must be examined using research that has designed strong studies such as RCTs and driven by adequate sample sizes. The influence of fatigue on caregivers, BurdenAlthough states that dealing with PSF is most important for 19 additional research, not finding a study that examines the extent to which PSF affects the unofficial workload of caregivers. Caregivers play an important role in the rehabilitation and care of stroke survivors on a daily basis. Well-designed research driven by adequate sample sizes is needed to explain how PSF contributes to burden-care and develops and evaluates interventions to help carers understand and help their loved ones better manage PSF. For example, caregivers can be taught to help stroke survivors area activities out throughout the day to conserve energy if found to be an effective intervention. Concluded in a major review of quantitative research related to PSF, the overall quality of the research was found to be poor. Few RCTs have been identified and many studies have sample sizes ≈40 or less, it is known that PSF is common and causes concern to doctors, researchers, patients and caregivers after ischemia and bleeding. PSF and poststroke depression are different clinical bodies and PSF contributes to qol reduction. There are many reliable and accurate tools to measure PSF obviously that the pathology of PSF is multiples and probably many parts. It is recommended that doctors and researchers come to consensus on the best definitions of PSF because the current definition is not specific enough. Clear instructions are needed for the tools to use and when to measure PSF, the multitude of PSF needs to be fully explained in well-designed research. With various physical and mental demographic components it is difficult to determine the exact influence that these components have on PSF As it is particularly important is to conduct research on how neurological deficits after stroke leads to PSF. Diabetes, high blood pressure and other fatigue-inducing conditions Does psf affect? How will the researchers determine how these can truly affect PSF? Patients who leave the hospital after a stroke may be given medications such as anti-seizures that cause fatigue. It is important to consider what types of medications are likely to be involved in PSF. Further studies should examine the effects of the drug on PSF. Other areas for research include the effects of difficulty eating, sleep disturbances, pain, and prestroke fatigue. The relationship between PSF and depression needs to be examined more thoroughly. Does depression lead to fatigue or fatigue, leading to depression? Until the agreed definition of PSF and the identification of strong tools to correctly diagnose stroke depression, there are many things to do. A better understanding of the pathology of PSF is the basis for identifying the treatment. Current research suggests that PSF is a medium, while others believe that pathway disruption is the cause, since these are two different mechanisms, research is needed for our further understanding and to provide information to patients and their family members. Inflammation, cytokines and biomarkers are important considerations in PSF. The number of biomarkers and cytokines that may lead to PSF makes these areas more complex to assess because it may not be clear which or how many PSF influences the effect of fatigue on the caregiver of patients with stroke is another recommended area required. Clinical considerations require a better understanding of PSF's legal entities in order to provide appropriate treatment. This understanding can be obtained by constantly collecting data to assess short-term and long-term results and engaging in high-quality research such as RCTs on PSF, evidence-based study materials on PSF must be provided to patients and family members so that when symptoms occur, family units can support the patient. Some educational materials are provided through the Stroke Association and should be released from hospitals for acute care and rehabilitation. Although much work needs to be done, much has been completed. Researchers and doctors can build on this foundation in an effort to improve QOL for patients and family members after a stroke. Acknowledge Many's thanks to Barbara Quintiliano, a special design teaching librarian, whose help with reference and Zotero is valuable. It contributes to the initial symposium and early drafting of this article. Writing Disclosure Group Writing Unemployment Group Member Research GrantOther Support Research Bureau/Honorary Extrat Witness Owner BenefitsConsultant/OtherJanice L. Advisory Committee NonNOneKyra J. BeckerUniversity Medical School Washington NINDS†NoneMultiple † Different cases†NoneParexel*; National College of Nursing Research Foundation*No OneNOneJong S. KimAsan Medical Center, Seoul, KoreaNnorma McNairUniversity of California, Los Angeles Academy of Medical Surgical Nurses MeadUniversity of edinburghchief scientist's office, Scotland, † stroke conference. Australasia Stroke Conference *No Neurology and Neurology* NoneKaren L. SabanLoyola University Of Chicago, Marcella Niehoff School of NursingVA (PI in clinical trials examining mindfulness in female veterans, coinvestigator In clinical trials, TMS was examined in severe TBI)*No NonReviewer. The disclosure of the information, ReviewerEmploymentResearch GrantOther, supports the Research Speakers's Bureau/HonorariaExpert WitnessOwnership InterestConsultant/Advisory BoardOtherJennifer KlinedinstUniversity of MarylandNoneN LutzUniversity of North Carolina–WilmingtonPCINGTONORI (coinvestigator on PCORI grants that receive interventional grants for posttroke care)No.*NOneNNNNINE Béjot Y, Daubail B, Giroud M. Epidemiology of Stroke and Transient Ischemic Attacks: Current Knowledge and Perspective Rev Neuron (Paris) 2016; 172:59–68. Doi: Brodmann A van der Port IG Exercise, depression and postpartum fatigue: worn out or tired? Neurology 2013; Doi: 10.1212/WNL.0b013e3182a9f59b.CrossrefMedlineGoogle Scholar3. Thomson AJ Symptomatic Treatment in Multiple Sclerosis Curr Opin Neurol. 11:305–309.CrossrefMedlineGoogle Scholar4. Fatigue after stroke: major but neglected problems Cerebrovasc Dis. 2001; 12:75–81. Lerdal A, Lee KA, Bakken LN, Finset A, Kim HS. Course of fatigue during the first 18 months after the first ever stroke: Longitudinal Study of Stroke Treatment 2012; 2012:126275. Acta Neurol scans. Fatigue, psychological and cognitive impairment after the onset of a temporary ischaemic and minor stroke: systematic monitoring eur J Neurol. 2014; 21:1258–1267. Egerton T, Hokstad A, Askim T, Bernhardt J, Indredavik B. Prevalence of fatigue in patients 3 months after stroke and its association with early motor activity: Expected studies compared stroke patients with matching general populations. Doi: 10.1186/s12883-015-0438-6. Lerdal A, Bakken LN, Kouwenhoven SE, Pedersen G, Kirkevold M, Finset A, Kim HS. Post-Stroke Fatigue: J Pain Review Management 2009; 38:928–949. Doi: 10.1016/j.jpainsymman.2009.04.028.CrossrefMedlineGoogle Scholar10. Psychological Association of Posttroke Fatigue: Systematic Monitoring and Meta-Analysis Range Seizures 2014; 45:1778–1783. Doi: 10.1161/STROKEAHA.113.004584.LinkGoogle Scholar11. Baylor C, Yorkston KM, Jensen MP, Truitt AR, Molton IR. top stroke treatment 2014; 21:371–382. Cumming TB, Packer M, Kramer SF, English C. Prevalence of fatigue after stroke: systematic monitoring and meta-analysis Int J Stroke. 2016; 11:968–977. Lynch J, Mead G, Greig C, Young A, Lewis S, Sharpe M. Fatigue after stroke: the development and evaluation of the definition of the case J Psychosom Res. 2007; Doi: 10.1016/j.jpsychores.2007.08.004.CrossrefMedlineGoogle Scholar14. Fatigue Poststroke: Characteristics and Related Factors Cerebrovasc Dis. 2005; 19:84–90. Doi: The Scottish Inter-Guidelines Network (SIGN) Stroke patients: rehabilitation prevention and management of complications and discharge planning: National Clinical Guidelines 2010 . Accessed on January 17, 2017.Google Scholar16 Glader EL, Stegmayr B, Asplund K. Poststroke Exhaustion: A Follow-up Study of Stroke Patients in Sweden 2, 2002; 33:1327–1333.LinkGoogle Scholar17. Brocker J. Effects of fatigue, pain and depression on quality of life in stroke patients: Bergen.Vasc Stroke Study Managed Health Risk 2012; 8:407–413. Scholars CrossrefMedlineGoogle18. van de Port IG, Kwakkel G, Bruin M, Lindeman. Pollock A, St George B, Fenton M, Firkins L. Top 10 Priority of life-related research after stroke: Consensus from stroke survivors, caregivers and health professionals Int J Stroke. 2014; 9:313–320. Schepers VP, Visser-Meily AM, Ketelaar M, Lindeman. Fatigue: Course and relationship with personal factors and stroke Arch Fire Med Rehadil 2006; 87:184–188. Doi: 10.1016/j.apmr.2005.10.005.CrossrefMedlineGoogle Scholar21. Long-term follow-up fatigue in young people with Cerebrovasc Dis. brain muscle 2005; 20:245–250. Doi: 10.1159/000087706.CrossrefMedlineGoogle Scholar22. Rhinoman N, Staub F, Aboulafia-Brakha T, Berney A, Bogousslavsky J, Annoni JM. Minor Postoperative Fatigue: Prospective Neurological Studies 2012; 79:1422–1427. Doi: 10.1212/WNL.0b013e31826d5f3a.CrossrefMedlineGoogle Scholar23. Chestnut T.J. Fatigue in stroke recovery patients: Pilot study Physiotherapy Res Int. 2011; 16:151–158. Feigin VL, Barker-Collo S, Parag V, Hackett ML, Kerse N, Barber PA, Themado A, Krishnamurthi R; On behalf of the Oakland Regional Stroke Studies Group, Prevalence and forecast of 6 months of fatigue in patients with ischemic stroke: a study of the incidence of stroke by population in Auckland, New Zealand. 2002-2003.Stroke 2012; 43:2604–2609. Mead GE, Graham C, Dorman P, Bruins SK, Lewis, SC, Dennis MS, Sandercock PA; UK colleagues of IST fatigue after stroke: a fundamental predictor and influence on survival: an analysis of data from UK patients selected in international stroke trials. Doi: 10.1371/journal.pone.0016988.CrossrefMedlineGoogle Scholar26. WK Set, Chen YK, Liang Chu WC, Mok VC, Ungvari GS, Wong KS. Subcortical white matter prediction Effect of fatigue in stroke BMC Neurol. 2014; Scholars CrossrefMedlineGoogle27, Wang SS, Wang JJ, Wang PX, Chen R. Determinants of fatigue after the first ischemic stroke during the acute period. [Published corrections appear in PLoS One. 2014;9:e116461] PLos One. Zedlitz AM, Visser-Meily AJ, Schepers VP, Geurts AC, Fasotti L. Patients with severe postpartum fatigue show a psychosocial profile comparable to those with other chronic diseases: the impact on diagnosis and treatment. ISRN neurons. Andersen G, Christensen D, Kirkevold M, John SPsen. Post-stroke fatigue and return to work: 2-year follow-up Acta nerve scans. Snaphaan L, Van der Verve S, de Levue Fe. Time course and risk factors of post-stroke fatigue: An expected cohort study eur J Neurol. 2011; 18:611–617. Lerdal A, Bakken LN, Rasmussen EF, Beiermann C, Ryen S, Pyn S, Pefvelin AS, Dahl AM, Rognstad, A. Fins, Lee, KA, Physical impairment, depression and fatigue before a stroke are associated with acute fatigue after a stroke. 33:334–342. Maaijwe NA, Arntz RM, Rutten-Jacobs LC, Schaapsmeerders P, Schoonderwaldt HC, van Dijk EJ, deuw Lee FE. Post-stroke fatigue and associated with poor performance outcomes after stroke in young adulthood Psychiatry J Neurol Neurosurg 2015; 86:1120–1126. Miller KK, Combs SA, Van Puymbroeck M, Altenburger PA, Kean J, Dierks TA, Schmid AA. Fatigue and pain: relationship with physical performance and patient's belief after stroke Top Stroke Therapy 2013; Pihlaja R, Uimonen J, Mustanoja S, Tatlisumak T, Poutiainen. Doi: 10.1016/j.jpsychores.2014.08.011.CrossrefMedlineGoogle Scholar35. Prevalence and predictors of pain and fatigue after a stroke: A study by Population Int J Rehabil Res. 2006; 29:329–333. Christensen D, Johnsen SP, Watt T, Harder I, Kirkevold Mersen, Andersen G. Dimension of post-stroke fatigue: A two-year follow-up study of Cerebrovasc Dis. 2008; 26:134–141. Doi: Harbison JA, Walsh S, Kenny, RA. High blood pressure and daytime low blood pressure are found in ambulance blood. High blood pressure and low blood pressure during the day are found in ambulance blood. 102:109–115. Becker K, Kohen R, Lee R, Tanzi P, Zierath D, Cain K, Mitchell P, Weinstein J. Poststroke Fatigue: Advice on Biological Mechanism j Stroke Cerebroc Dis. 2015; 24:618–621. Doi: 10.1016/j.jstrokecerebrovasdis.2014.10.008.CrossrefMedlineGoogle Scholar39. Winward Sea, Sackley The population study followed the prevalence of fatigue after a temporary ischemic attack and a minor stroke. 40:757–761. Doi: 10.1161/STROKEAHA.108.527101.LinkGoogle Scholar40. Van Der Werf SP, van den Broek HL, Anten HW, Bleijenberg G. Experience of severe fatigue after stroke and its association with depression and eur neurol syndrome. Tseng BY, Kluding P. The relationship between fatigue, aerobic exercise and motor control in people with chronic stroke: Pilot J Geriatr Phys Ther. 2009; 32:97–102.CrossrefMedlineGoogle Scholar42. Comparing fatigue levels in stroke patients and patients with final stage heart failure: Application of fatigue assessment levels J Am Geriatr Soc. 2008; 56:1915–1919. Doi: 10.1111/j.1532-5415.2008.01925.x.CrossreflineGoogle Scholar43. Fatigue in diabetics: Detection. Doi: 10.1016/j.jpsychores.2010.01.021.CrossrefMedlineGoogle Scholar44. Pfeffer MA, Burdmann EA, Chen CY, Cooper ME, de Zeeuw D, Eckardt KU, Feyzi JM, Ivanovich P, Kewalramani R, Levey AS, Lewis EF, McGill JB, McMurray, J.Parfrey P, Parving HH, Remuzzi G, Singh AK, Solomon SD, Toto R; Treat the detective. Trials of darbepoetin alfa in type 2 diabetes and chronic kidney disease. Doi: 10.1056 /NEJMoa0907845.CrossrefMedlineGoogle Scholar45. Stagnation Poststroke: Risk factors and effects on working status and quality of life associated with health Int J Stroke. 2015; 10:506–512. Doi: 10.1111/ijs.12409.CrossrefMedlineGoogle Scholar46. Duncan F, Lewis SJ, Greig CA, Dennis MS, Sharp M, MacLullich AM, Mead GE. 46:1052–1058. Ormstad H, Aass HC, Amthor KF, Lund-Sørensen N, Sandvik L. Serum cytokine and glucose levels are predicted as a body of postpartum fatigue in patients with acute ischemic stroke. [Published corrections appeared in J Neurol. 2012;259:399] J Neurol. Doi: 10.1007/s00415-011-5962-8 ScholarwMedlineGoogle48, Wu D, Wang L, Teng W, Huang K, Shang X. The relationship of post-stroke fatigue with glucose, 131:400–404. Crosby GA, Munshi S, Karat AS, Worthington, Fatigue after stroke: frequency and impact on daily life 34:633–637. Wu D, Wang L, Teng W, Huang K, Shang X. 2014 Eur Neurol. Piasecki TM, Fiore MC, MCCarthy DE, Baker TB. Are we lost? The dynamic formula requirement of recurrent smoking of the recurrent trend of smoking. 2002; 97:1093–1108.CrossrefMedlineGoogle Scholar52. Brocker J. triad of pain, fatigue and depression in stroke patients: Bergen.Cerebrovasc Dis. 2012 Stroke Study; 33:461–465. Doi: 10.1159/000336760.CrossrefMedlineGoogle Scholar53. Jacobson C, Axelsson K, Osterlind PO, Norburg A. How people with strokes and healthy elders suffer from the eating process. J. Klin Nurss, 2000; 9:255–264.CrossrefMedlineGoogle Scholar54. Westergren A, Carlson S, Anderson P, Olson Ohlson. Oh, Holberg, I.R. Difficulty eating the need to help eat, nutritional status and pressure ulcers in patients admitted to stroke rehabilitation. 10:257–269.CrossrefMedlineGoogle Scholar55. Westergren A, Olson Olson Oh, Holberg, IR Eating, difficulty associated with sex, duration of stay and discharge for institutional care among patients in stroke rehabilitation. 24:523–533. Jönsson AC, Lindgren I, Norrving B, Lindgren A. Weight loss after stroke: Population studies from Lund Stroke Register.Stroke. Doi: 10.1161/STROKEAHA.107.497602.LinkGoogle Scholar57. DR Thomas, CD Zdrowski, Wilson MM, Conright KC, Lewis C, Tariq S, Morley JE. 2002 AmJ Klin Nutner; 75:308–313.CrossrefMedlineGoogle Scholar58. Nutrition and relationships with food preparation, eating, fatigue and mood among stroke survivors after discharge from the hospital: A pilot study opened Nurs J. 2008; 2:15–20. Doi: 10.2174/1874434600802010015.CrossrefMedlineGoogle Scholar59. Sleep-related breathing and sleep disturbances in ischemic stroke Neurology 2009; Doi: 10.1212/WNL.0b013e3181bd137c.CrossrefMedlineGoogle Scholar60. 14:90–97.CrossrefMedlineGoogle Scholar61. Y. Sleep apnea, delirium, Depressed mood, cognition, and ADL ability after stroke. Academic scholars 62. JY Park, Chun MH, Kang SH, Lee JA, KimBR, Shin MJ. Results in posttroke patients with or without fatigue Am J. Faies Med Rehadil 2009; 88:554–558. Doi: 10.1097/phm.0b013e3181a0dae0.CrossrefMedlineGoogle Scholar63. Sue M. Choi-Kwon S. Kim JS Sleep disturbances after brain muscles: The role of depression and fatigue J Stroke Cerebrovasc Dis. 2014; 23:1949–1955. Doi: 10.1016/j.jstrokecerebrovasdis.2014.01.029.CrossrefMedlineGoogle Scholar64. Falconer M, Walsh S, Harbison The estimated prevalence of fatigue after a stroke and temporary ischemic attacks depends on the terminology used and the sex of the patient. J Stroke Cerebrovasc Dis. 2010; 19:431–434. Sterr A, Herron K, Dijk DJ, Ellis J. Time to wake up: sleep problems and daytime drowsiness in long-term stroke survivors 22:575–579. Choi-Kwon S, Choi JM, Kwon Soo, Kang DW, J S. Kim Factors affecting quality of life at 3 years after stroke J Clin Neurol. 2006; Doi: 10.3988/jcn.2006.2.1.1.34.CrossrefMedlineGoogle Scholar67. Long-term follow-up after-effects: Bergen J Neurol. 2010 stroke study; 257:1446–1452. Doi: 10.1007/s00415-010-5539-y Hoang CL, Salle JY, Mandigout S, Hamonet J, Macian-Montoro F, Daviet JC. Physical factors associated with fatigue after stroke: explored study Top Stroke Therapy 2012; Choi-Kwon S, Choi Sh, Soom, Choi S, Cho K, None, HW Song H, Kim J.S. 1 year after stroke: related factors and effects on quality of life Acta Neurol. 2017; 135:419–425. Doi: 10.1111/ane.12617.CrossrefMedlineGoogle Scholar70. Duncan F, Greig C, Lewis S, Dennis M, MacLullich A, Sharpe M, Mead G. Clinically Significant Fatigue After Stroke: Longitudinal Cohort Study J Psychosom Res. 2014; 77:368–373. Doi: 10.1016/j.jpsychores.2014.06.013.CrossrefMedlineGoogle Scholar71. Major fatigue is a risk indicator for a first stroke. Psychiatrist 2004; Doi: 10.1176/appi.psy.45.2.114.CrossrefMedlineGoogle Scholar72. Between smoking and fatigue major in risk of ischemic stroke: evidence from the 2004 ARIC Ann Epidemital study; 14:416–424. Kornerup H, Marott JL, Schnohr P, Boysen G, Barefoot J, Prescott. Major fatigue increases the risk of ischemic stroke in women, but not in men: J Psychosom Res. 2010; 68:131–137. Doi: Doi: Academic scholars74. Set WK, Chen YK, Mok V, Chu WC, Ungvari GS, Ahuja AT, Wong KS. Acute basallia clues in post-stroke fatigue: MRI J Neurol. 2010; 257:178–182. Doi: 10.1007/s00415-009-5284-2 Scholar scholar somatic symptoms in post-stroke depression: Analytical analysis methods that distinguish psychiatry Int J Geriatr 2005; 20:358–362. Tseng BY Billinger SA, Gajewski BJ, Kluding PM. Fatigue and chronic fatigue are two different buildings in people after a stroke. Convulsions range 2010; Doi: 10.1161/STROKEAHA.110.596064.LinkGoogle Scholar77. Kutlubaev MA, Shenkin SD, J Farrall, Duncan FH, Lewis SJ, Greig CA, Dennis MS, Wardlaw JM, Maclullich AM, Mead GE. CT and clinical prediction of fatigue one month after stroke. Doi: 10.1159/000347113.CrossrefMedlineGoogle Scholar78. Van Eijsden HM, van de Port IG, Visser-Meily JM, Kwakkel G. Poststroke Fatigue: Who is at risk of an increase in fatigue? Doi: 10.1155/2012/863978.MedlineGoogle Scholar79. 41:36–43.Scholar Choi-Kwon S, Choi J, Kwon Soo, Kang DW, Kim J.S. Fluoxetine Not effective in treating post-stroke fatigue: Two studies of blindness, placebo control. Doi: 10.1159/000097045.CrossrefMedlineGoogle Scholar81. Karaoke D, Tzavellas, Spengos K, Vassilopoulou S, Paparrigopoulos T. Duloxetine with citalopram and sertraline to treat postpartum depression, anxiety and fatigue J Neuropsychiatry Clin nerve. Doi: 10.1176 /appi.neuropsych.11110325.CrossrefMedlineGoogle Scholar82. Hubacher, Calabrese P. 1992; 40:922–935.CrossrefMedlineGoogle Scholar83. Assessment of post-stroke fatigue: Fatigue levels for motor and cognitive function Eur Neurol. 2012; 67:377–384. Doi: 10.1159/000336736.CrossrefMedlineGoogle Scholar84. Mental fatigue and cognitive impairment after a stroke almost a neurological recovery. Kuppuswamy A, Clark EV, IF Turner, Rothwell JC, Ward NS. Stroke Fatigue: Deficit in Cormotor Excitement? Brain 2015; Kutlubaev MA, Duncan FH, Mead GE. Biological relationship of post-stroke fatigue: Systematic monitoring of Acta nerve scans. 125:219–227. Doi: Doi: Wei C, Zhang F, Chen L, Ma X, Zhang N, Hao J. Factors associated with post-stroke depression and fatigue: wound position and j neurol coping pattern. Doi: 10.1007/s00415-015-7958-2. Set WK, Liang HJ, Chen YK, Chu WC, Abrigo J, Mok VC, Ungvari GS, Wong KS. Poststroke fatigue is associated with caudate infarcts J Neurol Sci. 2013; 324:131–135. Harboe, Tjensvoll AB, Vefring HK, Gøransson LG, Kvaløy JT, Omdal R. Fatigue In the main Sjögren syndrome: a link to illness behavior in pets? 23:1104–1108. Doi: 10.1016/j.bbi.2009.06.151.CrossrefMedlineGoogle Scholar90. Newton JL Fatigue in primary bilosis Clinton, Dis. 2008; 12:367–383, ix. Doi: 10.1016/j.cld.2008.02.010.CrossrefMedlineGoogle Scholar91. Curr Neurol Neurosci Rep. 2001; 1:294–298.CrossrefMedlineGoogle Scholar92. Fatigue in systemic lupus erythematosus and rheumatoid arthritis. Doi: 10.1016/j.pmrj.2010.03.026.CrossrefMedlineGoogle Scholar93. 2010: 7:313–319. Doi: 10.1038/nrgastro.2010.62.CrossrefMedlineGoogle Scholar94. Harrison, NA, Brydon L, Walker C, Gray MA, Steptoe A, Dolan RJ, Critchley HD. Neurological origins of human illness in inter-inflammatory responses. 66:415–422. Doi: 10.1016/j.biopsych.2009.03.007.CrossrefMedlineGoogle Scholar95. Kelley KW. twenty years of research on behavioral illness caused by brain cytokine Behav Immoon 21. Tate J, Olencki T, Finke J, Kottke-Marchant K, Rybicki LA, Bukowski RM. Phase I Trials of GM-CSF and IL-6 in patients with renal cell carcinoma: Clinical and laboratory effects Ofan-Aloncole 2001; 12:655–659.CrossrefMedlineGoogle Scholar97. Inhibition and fatigue in primary Sjögren syndrome: double blindness, randomized clinical trials. One. 2012; 7:e30123. Doi: 10.1371/journal.pone.0030123.CrossrefMedlineGoogle Scholar98. Aj Outman, Cl Jones, DeWitte M, Lodge P.J. Fatigue in Advanced Cancer Patients: A pilot study of interventions with infliximab supporting cancer care of 2008; 16:1131–1140. Doi: 10.1007/s00520-008-0429-x Barana Suscarit A, Raffayová H, Kungurov NV, Kubanova A, Venalis A, Helmle L, Srinivasan S, Nasonov, Vastesaeger N; Investigators meet Infliximab plus methotrexate superior methotrexate alone in the treatment of psoriatic psoriasis in naïve methotrexate. 2012; 71:541–548. Doi: 10.1136/ard.2011.152223.CrossrefMedlineGoogle Scholar100. Matsuyama M, Suzuki T, Tsuboi H, Ito S, Mamura M, Goto D, Matsumoto I, Tsutsumi A, Sumida T. Anti-interleukin-6 antibody receptors (tocilizumab) treatment for castleman multi-centered internship Med. 2007; 46:771–774.CrossMedlineGoogle Scholar101. Improving quality of life related to health after treatment Tocilizumab in patients with refractory rheumatoid arthritis to inhibit tumor factors: results from radiate randomized controlled studies 24 weeks. Rheumatism (Oxford) 2012; 51:1860–1869. Doi: 10.1093/rheumatism/kes131 of crossrefMedlineGoogle102 scholars. Burmester GR, Feist, Kellner H, Braun J, Iking-Konert C, Rubbert-Roth A. Efficacy and Safety of interleukin 6-receptor antagonist tocilizumab after 4 and 24 weeks in patients with active rheumatoid arthritis: First Phase IIIb Real-Life Study (TAMARA) Ann Rheum Dis. 2011; 70:755–759. Doi: 10.1136/ard.2010.139725.CrossrefMedlineGoogle Scholar103. McKechny F, Lewis S. Mead G. A pilot observational study of the relationship between fatigue after stroke and reaction protein C Doctor J R Coll EdinB. 40:9–12. Doi: 10.4997/JRCPE.2010.103.CrossrefMedlineGoogle Scholar104. Becker K.J. Inflammation and silent sequelae of stroke 13:801–810. Doi: 10.1007/s13311-016-0451-5. Wu S, Duncan F, Anderson NH, Kuppuswamy A, Macloed MR, Mead GE. The study explores the cohort of the relationship between serum C-protein reactions and fatigue after a stroke. Rafiq S, Stevens K, Hurst AJ Murray A, Henley W, Weedon MN, Bandinelli S, Corsi AM, Guralnik JM, Ferruci, L Melzer, Frayling TM. General genetic changes in the interleukin-1-receptor-antagonist encoding gene (IL-1RA) are associated with changes in circulating IL-1RA levels. 8:344–351. Doi: 10.1038/sj.gene.6364393.CrossrefMedlineGoogle Scholar107. Reiner AP, Wurfel MM, Lange LA, Carlson CS, Nord AS, Carty CL, Rieder MJ, Desmarais C, Jenny NS, Iribarren C, Walston JD, Williams OD, Nickerson DA, Jarvik GP. Arterioscler Thromb Vasc Biol. 2008; 28:1407–1412. Doi: 10.1161/ATVBAHA.108.167437.LinkGoogle Scholar108. In the potential role of glutamate transport in mental fatigue. Doi: 10.1186/1742-2094-1-22.CrossrefMedlineGoogle Scholar109. Plasma glutamate levels predict fatigue after TIA and minor strokes [abstract] Cerebrovasc Dis. 2007; 23(suppl 2):117.Google Scholar110. Castillo J, Serena J, Noya M. Duration of Glutamate Release After Acute Ischemic Stroke 1997 Twitch Range; 28:708–710.CrossrefMedlineGoogle Scholar111. Fog B, Hewett SJ. Interleukin-1beta: The bridge between inflammation and excitement? J Neurochem. Doi: 10.1111/j.1471-4159.2008.05315.x.CrossrefmedlineGoogle Scholar12. Released from astrocytes in physiological conditions and in neurological disorders, characterized by neuroinflammation Int Rev Neurobiol. 2007; 82:57–71. Doi: 10.1016/S0074-7742(07)82003-4.CrossrefMedlineGoogle Scholar113. Inflammation, glutamate, and glia in depression: a literary review. Specifications ON CNS 2008; Leonard BE, Myint A. Inflammation and Depression: Is There a causal connection to dementia? 2006; 10:149–160.CrossrefMedlineGoogle Scholar115. Hopkins S.J. Central nervous system perception of peripheral inflammation: Neurological and hormonal collaboration Acta Biomed. Jaeger A, Selichfer S, Van der Ridge CC. Pathogens of cancer-related fatigue: may increase the activity of pro-inflammatory cytokines as a contributing? Eureka Cancer 2008; Mead G, Lynch J, Greig C, Young A, Lewis S, Sharpe M. Assessment of fatigue levels in stroke patients during seizures 2007; Doi: 10.1161/STROKEAHA.106.478941.LinkGoogle Scholar118. SJ. Fatigue after stroke, Arch Fire Med Rehadil 1999; 80:173–178.CrossrefMedlineGoogle Scholar119. Whitehead L. Measurement of fatigue in chronic illness: a systematic review of systemic and multi-unit fatigue measures. Pain J management 2009; Doi: 10.1016/j.jpainsymman.2007.08.019.CrossrefMedlineGoogle Scholar120. The psychological properties of scale-scale fatigue severity analyzed the individual response in the Norwegian stroke cohort. 48:1258–1265. Doi: 10.1016/j.ijnurstu.2011.02.019.CrossrefMedlineGoogle Scholar121. I'm EW, T. Utley too little, too late: mesylate tirilazad Wu S, Kutlubaev MA, Chun HY, Cowey, Pollock A, Macleod MR, Dennis M, Keane, Sharpe M, Mead GE. Interventions for fatigue after stroke Rev. 2015:CD007030 Doi: 10.1002/14651858.CD07030.pub3.MedlineGoogle Scholar123. Effects of modafinil on subjective fatigue in multiple sclerosis and stroke patients. Doi: 10.1159/000232927.CrossrefMedlineGoogle Modafinil may alleviate posttroke fatigue: randomized trial, placebo control, double blindness. 46:3470–3477. Johansson B, Carlsson A, Carlsson ML, Karlsson M, Nilsson MK, Nordquist-Brandt, Rönnbäck L. A cross-controlled placebo study of monoaminergic stability (-)-OSU6162 in mental fatigue following a stroke or traumatic brain injury. Doi: 10.1111/j.1601-5215.2012.00678.x.CrossreflineGoogle Scholar126. 2012 PLos. Doi: 10.1371/journal.pone.0030519.CrossrefMedlineGoogle Scholar127. Kurak SV, Parfenov VA. Asthenia after stroke and myocardial infarction and therapy Enerion.Clin Gerontol 2005; 8:9–12.Google Scholar128. Costantini A, Pala MI, Catalano ML, Notarangelo C, Careddu P. High-dose thiamine improves fatigue after stroke: Three cases reported J Altern supplemented Med. 2014; 20:683–685. Boiko AN, Lebedeva AV, Shchukin IA, Soldatov MA, Petrov SV, Khozova AA, Ismailov AM, Shikerkhimov RK. 2013; 113:27–33 Post stroke in patients with post stroke. ClinicalTrials.gov. Random, double blindness, placebo-controlled trial to evaluate the efficacy of Astragalus Membranaceus in patients after stroke with fatigue.2012. . . Li L, Hou X, Xu R, Liu C, Tu M. Research Review on the Pharmacological Effects of Astragaloside IV.Fundam Clin Pharma. 2017; 31:17–36. Billinger SA, Arena R, Bernhardt J, Eng JJ, Franklin BA, Johnson CM, MacKay-Lyons M, Macko RF, Mead GE, Roth EJ, Shaughnessy M, Tang A; On behalf of the American Heart Association's Stroke Council Council on Cardiovascular And Stroke Nursing; Council on Lifestyle and Cardiac Health; Council on Epidemiology and Prevention; Clinical Cardiology Council Exercise and exercise advice for stroke survivors: A statement for health care professionals from the American Heart Association/American Stroke Association 2014; 45:2532–2010. Doi: 10.1161 /STR.00000000000000022.LinkGoogle Scholar133. CJ Winstein, Stein J, Arena R, Bates B, Cherney LR, Cramer SC, Deruyter F, Eng JJ, Fisher B, Harvey RL, Lang CE, MacKay-Lyons M, Ottenbacher KJ, Pugh S, MJ Reeves, Richards LG, Stiers W, Zorowitz RD; On behalf of the American Heart Association Stroke Council, cardiovascular and stroke nursing councils, clinical cardiology councils, and About the quality of research, care and results Guidelines for adult stroke rehabilitation and recovery: Guidelines for healthcare professionals from the American Heart Association/American Stroke Association [revised published in Stroke 2017;48:e78] Seizures Range 2016; 47:e98–e169. Doi: 10.1161 /STR.00000000000000098.LinkGoogle Scholar134. National Stroke Foundation Clinical Guidelines for Stroke Management 2010.www.pedro.org.au/wp-content/uploads/CPG_stroke.pdf. Access on January 17, 2017.Google Scholar135 American Heart Association/American Heart Association.Source:Twitter/Getty Communications 017.Google Scholar136 National Stroke Association Fatigue on January 17, 2017.Google Scholar137 Association of Stroke Stroke Associations website.www.stroke.org.uk. Accessed January 17, 2017.Google Academic Scholars