

Bölüm 19

FİBROMİYALJİ AĞRISINA YAKLAŞIM

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FİBROMİYALJİ TANIMI VE TARİHÇESİ

Fibromiyalji latin kökenli bir kelime olan fibro-(fibröz doku, ligament, tendon, fascia), Yunan kökenli bir kelime olan -miyo-(kas doku), -ia (durum) kelimelerinin birleşimi ile oluşmuştur (1). Yaygın kas iskelet sistemi ağrısına sabah tutukluğu, yorgunluk, depresyon ve anksiyete semptomları, kognitif işlevlerde bozulma, sindirim sistemi düzensizliği gibi semptomların eşlik ettiği, muayenede çoklu hassas noktalarında saptanabildiği kronik, etyolojisi ve patofizyolojisi tam aydınlatılmamış santral ağrı sendromudur (2, 3)

Fibromiyalji sendromu için (FMS) Hipokrat; organik neden saptanmayan kas ağrıları için dış görünüş olarak sağlıklı fakat kronik ağrı ve çoklu somatik şikayetlerle giden bir hastalıktan bahsetmiştir. 1843'de ilk olarak Froriep romatizma teşhisi konan hastaların kas muayenesinde basınç ile ağrılı ve sert noktalar saptamıştır (4). 1972'de ise hassas nokta tanımı Smythe tarafından yapıldı (5). FMS üzerine ilk kontrollü çalışma Yunus ve arkadaşları tarafından 1981'de yapılmış, sağlıklı ve hasta 50 kişilik iki grup karşılaştırılmıştır. Hasta grupta yorgunluk, anksiyete, baş ağrısı, uyku bozukluğu, eklem harici bölgelerde şişlik gibi bulgular daha fazla saptanmıştır. Bu çalışma hastalığın tanısını koymada %96 duyarlılık ve %100 özgüllüğe sahiptir (6).

FİBROMİYALJİ EPİDEMİYOLOJİSİ

FMS romatoloji polikliniğinde osteoartrit sonrası ikinci en sık saptanan hastalıktır(7). Genel popülasyon prevalansı %2.9-4.7 arasındadır(8). FMS en çok 40-60 yaş arasında görülmektedir ve hastaların %85-90 ini kadınlar oluşturmaktadır(9). Kadınlara göre erkek hastalarda hassas nokta ve semptom sayısının daha düşük

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luđu akşam saatlerinde alınmalıdır. Maksimal doz 600 mg/gündür. (97)En sık görülen yan etkiler sedasyon, uyku hali, kabızlık, kilo artışı, periferik ödem ve görmede bulanıklık olup düzenli kullanımda bu etkiler azalmaktadır(83). Yaygın ağrı semptomlarının ön planda olduđu hastalarda kullanılabilir (34).

Gabapentin GABA reseptörleri üzerine direk etkili bir ilaç olmayıp sinaptik aralıkta GABA salınımını artırarak analjezik etki gösterir (99). FMS tedavisinde kullanımı ile ilgili yetersiz kanıtlar mevcuttur, tedavide kullanımı önerilmemektedir (100).

Tramadol zayıf opioid aktiviteye ek olarak serotonin ve noradrenalin geri emilim inhibisyonuna sahiptir. 150 mg/gün ile yapılmış çalışmalar mevcut olup bu dozu aşmayacak şekilde kısa süreli kullanılabilceđi belirtilmiştir (101).

Melatonin, metamizol, norepinefrin inhibitörleri, kortikosteroidler, kannabonoidler, dopamin agonistleri, serotonin, güçlü opioidler, hipnotikler, lokal ve intravenöz lidokain monoamin oksidaz inhibitörleri (MAO), valasiklovir ile ilgili yeterli klinik çalışma olmadığı için kullanımları önerilmemektedir (92). Non-steroid anti inflamatuvar ilaçlar FMS tedavisinde sıklıkla reçele edilmelerine rağmen FMS'li hastalarda kullanımı önerilmemektedir (102).

KAYNAKÇA

- 1: Helfenstein JM, Goldenfum MA, Siena CAF. Fibromialgia: aspectos clínicos e ocupacionais. Revista da Associação Médica Brasileira. 2012;58:358-365.
- 2: Abokrysha NT. Vitamin D deficiency in women with fibromyalgia in Saudi Arabia. Pain medicine (Malden, Mass). 2012;13(3):452-458.
- 3: Harth M, Nielson WR. The fibromyalgia tender points: use them or lose them? A brief review of the controversy. The Journal of rheumatology. 2007;34(5):914-922.
- 4: Affaitati G, Costantini R, Fabrizio A, et al. Effects of treatment of peripheral pain generators in fibromyalgia patients. European journal of pain (London, England). 2011;15(1):61-69.
- 5: Smythe HA, Moldofsky H. Two contributions to understanding of the "fibrositis" syndrome. Bulletin on the rheumatic diseases. 1977;28(1):928-931.
- 6: Yunus M, Masi AT, Calabro JJ, et al. Primary fibromyalgia (fibrositis): clinical study of 50 patients with matched normal controls. Seminars in arthritis and rheumatism. 1981;11(1):151-171.
- 7: Bruce, C. (2005). Fibromyalgia, arthritis associated with systemic disease, and other arthritides. Dennis L. Kasper (Ed). Harrisons Principles of Medicine içinde (16ndEd.) (s.2055-2061)
- 8: Branco JC, Bannwarth B, Failde I, et al. Prevalence of Fibromyalgia: A Survey in Five European Countries. Seminars in arthritis and rheumatism. 2010;39(6):448-453.
- 9: Wolfe F, Ross K, Anderson J, et al. The prevalence and characteristics of fibromyalgia in the general population. American College of Rheumatology. 1995;38(1):19-28.
- 10: White KP, Speechley M, Harth M, et al. The London Fibromyalgia Epidemiology Study: the prevalence of fibromyalgia syndrome in London, Ontario. The Journal of rheumatology. 1999;26(7):1570-1576.
- 11: Topbas M, Cakirbay H, Gulec H, et al. The prevalence of fibromyalgia in women aged 20-64 in Turkey. Scandinavian journal of rheumatology. 2005;34(2):140-144.
- 12: Cobankara V, Unal UO, Kaya A, et al. The prevalence of fibromyalgia among textile workers in the city of Denizli in Turkey. International journal of rheumatic diseases. 2011;14(4):390-394.

- 13: Pellegrino MJ, Waylonis GW, Sommer A. Familial occurrence of primary fibromyalgia. *Archives of physical medicine and rehabilitation*. 1989;70(1):61-63.
- 14: Mergener M, Becker RMR, Santos AFd, et al. Influência da interação entre qualidade ambiental e o SNP T102C do gene HTR2A sobre a suscetibilidade à fibromialgia. *J Revista Brasileira de Reumatologia*. 2011;51:594-602.
- 15: Geisser ME, Glass JM, Rajcevska LD, et al. A psychophysical study of auditory and pressure sensitivity in patients with fibromyalgia and healthy controls. *The journal of pain : official journal of the American Pain Society*. 2008;9(5):417-422.
- 16: Julien N, Goffaux P, Arsenault P, et al. Widespread pain in fibromyalgia is related to a deficit of endogenous pain inhibition. *Pain*. 2005;114(1-2):295-302.
- 17: Kosek E, Hansson P. Modulatory influence on somatosensory perception from vibration and heterotopic noxious conditioning stimulation (HNCS) in fibromyalgia patients and healthy subjects. *Pain*. 1997;70(1):41-51.
- 18: Staud R, Vierck CJ, Cannon RL, et al. Abnormal sensitization and temporal summation of second pain (wind-up) in patients with fibromyalgia syndrome. *Pain*. 2001;91(1-2):165-175.
- 19: Baron R. Mechanisms of disease: neuropathic pain--a clinical perspective. *Nature clinical practice Neurology*. 2006;2(2):95-106.
- 20: Campbell JN, Meyer RA. Mechanisms of neuropathic pain. *Neuron*. 2006;52(1):77-92.
- 21: Nielsen LA, Henriksson KG. Pathophysiological mechanisms in chronic musculoskeletal pain (fibromyalgia): the role of central and peripheral sensitization and pain disinhibition. *Best practice & research Clinical rheumatology*. 2007;21(3):465-480.
- 22: McCain GA, Tilbe KS. Diurnal hormone variation in fibromyalgia syndrome: a comparison with rheumatoid arthritis. *The Journal of rheumatology Supplement*. 1989;19:154-157.
- 23: Akıncı, AT. (2009). Fibromiyalji nöropatik ağrı mıdır? Tan E(Ed.), *Nöropatik Ağrı*(s.153-167). Ankara: Nobel Matbaacılık
- 24: Russell IJ, Michalek JE, Vipraio GA, et al. Platelet 3H-imipramine uptake receptor density and serum serotonin levels in patients with fibromyalgia/fibrositis syndrome. *The Journal of rheumatology*. 1992;19(1):104-109.
- 25: Koçanoğulları, H. (1999). Fibromiyalji. Gürbüz Gümüüşdiş (Ed.), *Eker Klinik Romatoloji içinde* (549-554). İstanbul: Deniz matbaası
- 26: Vaeroy H, Helle R, Forre O, et al. Elevated CSF levels of substance P and high incidence of Raynaud phenomenon in patients with fibromyalgia: new features for diagnosis. *Pain*. 1988;32(1):21-26.
- 27: Yunus MB. Towards a model of pathophysiology of fibromyalgia: aberrant central pain mechanisms with peripheral modulation. *The Journal of rheumatology*. 1992;19(6):846-850.
- 28: Talotta R, Bazzichi L, Di Franco M, et al. One year in review 2017: fibromyalgia. *J Clin Exp Rheumatol*. 2017;35:6-12.
- 29: Wood PB. Role of central dopamine in pain and analgesia. *Expert review of neurotherapeutics*. 2008;8(5):781-797.
- 30: Simms RW. Fibromyalgia is not a muscle disorder. *The American journal of the medical sciences*. 1998;315(6):346-350.
- 31: Sprott H, Bradley LA, Oh SJ, et al. Immunohistochemical and molecular studies of serotonin, substance P, galanin, pituitary adenylyl cyclase-activating polypeptide, and secretoneurin in fibromyalgic muscle tissue. *Arthritis and Rheumatism* 1998;41(9):1689-1694.
- 32: Lund N, Bengtsson A, Thorborg P. Muscle tissue oxygen pressure in primary fibromyalgia. *Scandinavian journal of rheumatology*. 1986;15(2):165-173.
- 33: Keskindag B, Karaaziz M. The association between pain and sleep in fibromyalgia. *Saudi medical journal*. 2017;38(5):465-475.
- 34: Clauw DJ. Fibromyalgia: a clinical review. *Jama*. 2014;311(15):1547-1555.
- 35: Moldofsky H. The significance of dysfunctions of the sleeping/waking brain to the pathogenesis and treatment of fibromyalgia syndrome. *Rheumatic diseases clinics of North America*. 2009;35:275-283.

- 36: Prinz PN, Moe KE, Dulberg EM, et al. Higher plasma IGF-1 levels are associated with increased delta sleep in healthy older men. *The journals of gerontology Series A, Biological sciences and medical sciences.* 1995;50(4):222-226.
- 37: Rodriguez-Pintó I, Agmon-Levin N, Howard A, et al. Fibromyalgia and cytokines. *Immunol Lett.* 2014;161(2):200-203.
- 38: Bennett RM, Jones J, Turk DC, et al. An internet survey of 2,596 people with fibromyalgia. *BMC musculoskeletal disorders.* 2007;8:27.
- 39: Şendur, ÖF. Kahvecioğlu, F. (2015) Ağrılı kas sendromları. Oğuz H(Ed), *Tıbbi Rehabilitasyon içinde (s.1011-1024).* Ankara: Nobel Tıp Kitabevi
- 40: Buskila D, Neumann L. Fibromyalgia syndrome (FM) and nonarticular tenderness in relatives of patients with FM. *The Journal of rheumatology.* 1997;24(5):941-944.
- 41: Eyigör S, Kirazlı Y. Fibromyalgia syndrome from the perspective of neuropathic pain. *The journal of the Turkish Society of Algology.* 2008;20(1):8-12.
- 42: Martinez-Lavin M. Fibromyalgia is a neuropathic pain syndrome. *Journal of rheumatology.* 2006;33(4):827-828.
- 43: Wiffen PJ, Derry S, Moore RA, et al. Antiepileptic drugs for neuropathic pain and fibromyalgia-an overview of Cochrane reviews. *Cochrane Database of Systematic Reviews.* 2013(11). Doi:10.1002/14651858.CD010567.pub2
- 44: Bigatti SM, Hernandez AM, Cronan TA, et al. Sleep disturbances in fibromyalgia syndrome: relationship to pain and depression. *Official Journal of the American College of Rheumatology.* 2008;59(7):961-967.
- 45: Moldofsky H, Scarisbrick P. Induction of neurasthenic musculoskeletal pain syndrome by selective sleep stage deprivation. *Psychosomatic medicine.* 1976;38(1), 35-44.
- 46: Hudson JI, Hudson MS, Pliner LF, et al. Fibromyalgia and major affective disorder: a controlled phenomenology and family history study. *Am J Psychiatry.* 1985;142(4):441-446.
- 47: Tesio V, Torta DM, Colonna F, et al. Are fibromyalgia patients cognitively impaired? Objective and subjective neuropsychological evidence. *Arthritis Care and Research.* 2015;67(1):143-150.
- 48: Arnold LM, Hudson JI, Keck Jr PE, et al. Comorbidity of fibromyalgia and psychiatric disorders. *The Journal of clinical psychiatry.* 2006;67(8): 1219-1225.
- 49: Yunus M, Masi A, Aldag J. A controlled study of primary fibromyalgia syndrome: clinical features and association with other functional syndromes. *The Journal of rheumatology.* 1989;19:62-71.
- 50: Şendur ÖF. Fibromiyalji Sendromu. *Türkiye Klinikleri J PM&R-Special Topics* 2017;10(3):252-8
- 51: Yunus M. Central sensitivity syndromes: a unified concept for fibromyalgia and other similar maladies. *Indian Rheum Assoc.* 2000;8(1):27-33.
- 52: Yunus M, Inanici F. (2002). Fibromyalgia syndrome: clinical features, diagnosis, and biopathophysiological mechanisms. Edward S. Rachlin, Isabel S. Rachlin (Eds.), *Myofascial pain and fibromyalgia: trigger point management içinde (s.3-31).* Philadelphia: Mosby
- 53: Wolfe F, Smythe HA, Yunus MB, et al. The American College of Rheumatology 1990 criteria for the classification of fibromyalgia. *Arthritis Rheumatism: Official Journal of the American College of Rheumatology.* 1990;33(2):160-172.
- 54: Özcan O, İrdesel J, Sivrioğlu K. (2005). Bölgesel ağrı sendromu. *Fibromiyalji.* Sivrioğlu K (Ed). *Kas iskelet sistemi ağrıları içinde (s.187-96).* İstanbul: Nobel ve Güneş kitabevi.
- 55: Brady DM, Schneider M. Fibromyalgia syndrome: a new paradigm for differential diagnosis and treatment. *Journal of Manipulative Physiological Therapeutics.* 2001;24(8):529-541.
- 56: Bennett R. Clinical manifestations and diagnosis of fibromyalgia. *Rheumatic Disease Clinics.* 2009;35(2):215-232.
- 57: Goldenberg, D. (1994). *Fibromyalgia.* Klippel JH, Dieppe PA(Ed.) *Rheumatology.* 5 ed. (p. 1-12). London: Mosby.
- 58: Kayhan, Ö. (1995). *Fibromiyalji. Ağrı Serisi.* Ankara: Hekimler Yayın Birliği. 1995;9:5-10.
- 59: Schmidt-Wilcke T, Lueding R, Weigand T, et al. Striatal grey matter increase in patients suffering from fibromyalgia—a voxel-based morphometry study. *Pain.* 2007;132:S109-116.

- 60: Kwiatek R, Barnden L, Tedman R, et al. Regional cerebral blood flow in fibromyalgia: Single-photon-emission computed tomography evidence of reduction in the pontine tegmentum and thalami. *Arthritis and Rheumatism*. 2000;43(12):2823-2833.
- 61: Gracely RH, Petzke F, Wolf JM, et al. Functional magnetic resonance imaging evidence of augmented pain processing in fibromyalgia. *Arthritis and Rheumatism*. 2002;46(5):1333-1343.
- 62: Demir, H.(2016).Fibromiyalji Sendromu. Yeşim Gökçe Kutsal (Ed.), *Fiziksel Tıp ve Rehabilitasyon içinde (1911-1920)*. Ankara : Güneş Tıp Kitabevi
- 63: Okifuji A, Turk D, Sinclair J, et al. A standardized manual tender point survey. I. Development and determination of a threshold point for the identification of positive tender points in fibromyalgia syndrome. *The Journal of rheumatology*. 1997;24(2):377-383.
- 64: Harden RN, Revivo G, Song S, et al. A critical analysis of the tender points in fibromyalgia. *Pain medicine*. 2007;8(2):147-156.
- 65: Wolfe F. Stop using the American College of Rheumatology criteria in the clinic. *J Rheumatol* 2003;30;1671-1672.
- 66: Wolfe F, Clauw DJ, Fitzcharles MA, et al. The American College of Rheumatology preliminary diagnostic criteria for fibromyalgia and measurement of symptom severity. *Arthritis care research*. 2010;62(5):600-610.
- 67: Macfarlane G, Croft P, Schollum J, et al. Widespread pain: is an improved classification possible? *The Journal of rheumatology*. 1996;23(9):1628-1632.
- 68: Bennett RM, Friend R, Marcus D, et al. Criteria for the diagnosis of fibromyalgia: validation of the modified 2010 preliminary American College of Rheumatology criteria and the development of alternative criteria. *Arthritis care research*. 2014;66(9):1364-1373.
- 69: Wolfe F, Clauw DJ, Fitzcharles MA, et al. 2016 Revisions to the 2010/2011 fibromyalgia diagnostic criteria. *Seminars in arthritis and rheumatism*. 2016;46(3):319-329.
- 70: Coşkun NC. Fibromiyalji Sendromunda Klinik, Tanı, Ayırıcı Tanı. *Türkiye Klinikleri Fiziksel Tıp ve Rehabilitasyon Dergisi Özel sayı*2015;8(3):15-21.
- 71: Goldenberg, DL. (1998). *Fibromyalgia and related syndromes*. John H. Klippel, Paul A. Dieppe(Eds) *Rheumatology içinde (s.1-12)* Philadelphia: Mosby
- 72: Buskila D. Fibromyalgia, chronic fatigue syndrome and miyofasial pain syndrome. *Curr Opin Rheumatol*. 2001;13(2):1117-1127
- 73: Matsui T, Shimada K, Ozawa N, et al. Diagnostic utility of anti-cyclic citrullinated peptide antibodies for very early rheumatoid arthritis. *The Journal of rheumatology*. 2006;33(12):2390-2397.
- 74: Martinez JE, Ferraz MB, Sato E. Fibromyalgia versus Rheumatoid Arthritis: A Longitudinal Comparison of the Quality of Life Table. *The Journal of rheumatology*. 1995;22(2):270-274
- 75: Coury F, Rossat A, Tebib A, et al. Rheumatoid arthritis and fibromyalgia: a frequent unrelated association complicating disease management. *The Journal of rheumatology*. 2009;36(1):58-62.
- 76: Goldenberg DL. Diagnosis and Differential Diagnosis of Fibromyalgia. *The American Journal of Medicine*. 2009;122(12):14-21.
- 77: Bazzichi L, Rossi A, Giuliano T, De Feo F, et al. Association between thyroid autoimmunity and fibromyalgic disease severity. *Clinical rheumatology*. 2007;26(12):2115-2120.
- 78: Dinerman H, Steere AC. Lyme disease associated with fibromyalgia. *Annals of internal medicine*. 1992;117(4):281-285.
- 79: Erkal M, Wilde J, Bilgin Y, et al. High prevalence of vitamin D deficiency, secondary hyperparathyroidism and generalized bone pain in Turkish immigrants in Germany: identification of risk factors. *Osteoporosis international*. 2006;17(8):1133-1140.
- 80: Fitzcharles MA, Ste-Marie PA, Goldenberg DL, et al. The National Fibromyalgia Guideline Advisory Panel. 2012 Canadian guidelines for the diagnosis and management of fibromyalgia syndrome:Executive summary. *Pain Res Manag* 2013;18(3):119-126.
- 81: Macfarlane GJ, Kronisch C, Dean LE, et al. EULAR revised recommendations for the management of fibromyalgia. *Annals of the rheumatic diseases*. 2017;76(2):318-328.
- 82: Dilşat S, İlknur S, Sina E. Fibromiyalji sendromunda uygulanan tedavi yöntemleri. *Türk Fiziksel Tıp ve Rehabilitasyon Dergisi*. 2012;58:136-142.

- 83: Hauser W, Thieme K, Turk DC. Guidelines on the management of fibromyalgia syndrome - a systematic review. *European journal of pain* (London, England). 2010;14(1):5-10.
- 84: Tur BS. Fibromiyalji sendromunda egzersiz tedavisi Türkiye Klinikleri Fiziksel Tıp ve Rehabilitasyon Özel Sayı. 2015;8(3):45-49.
- 85: Mannerkorpi K, Nyberg B, Ahlmen M, et al. Pool exercise combined with an education program for patients with fibromyalgia syndrome. A prospective, randomized study. *The Journal of rheumatology*. 2000;27(10):2473-2481
- 86: Hassett AL, Gevirtz RN. Nonpharmacologic treatment for fibromyalgia: patient education, cognitive-behavioral therapy, relaxation techniques, and complementary and alternative medicine. *Rheumatic diseases clinics of North America*. 2009;35(2):393-407.
- 87: Vincent C. The safety of acupuncture. *BMJ* (Clinical research ed). 2001;323(7311):467-468.
- 88: Vas J, Santos-Rey K, Navarro-Pablo R, et al. Acupuncture for fibromyalgia in primary care: a randomised controlled trial. *Acupuncture in medicine : journal of the British Medical Acupuncture Society*. 2016;34(4):257-266.
- 89: Genç A. Fibromiyalji Sendromunda Non farmakolojik tedavi Yöntemleri. *Türkiye Klinikleri J*. 2015;8(3):36-44.
- 90: Evcik D, Kizilay B, Gokcen E. The effects of balneotherapy on fibromyalgia patients. *Rheumatology international*. 2002;22(2):56-59.
- 91: von Troschel J, Selbmann HK, Encke A. [Health services research and guidelines--from the Association of the Scientific Medical Societies' (AWMF) perspective]. *Zeitschrift fur arztliche Fortbildung und Qualitätssicherung*. 2006;100(8):597-602.
- 92: Thieme K, Mathys M, Turk DC. Evidenced-Based Guidelines on the Treatment of Fibromyalgia Patients: Are They Consistent and If Not, Why Not? Have Effective Psychological Treatments Been Overlooked? *The journal of pain, official journal of the American Pain Society*. 2017;18(7):747-756.
- 93: Lawson K. A brief review of the pharmacology of amitriptyline and clinical outcomes in treating fibromyalgia. *Biomedicine* 2017;5(2):24.
- 94: Drugwatch (2019). Cymbalta 2004 (16.07.2019 tarihinde <https://www.drugwatch.com/cymbalta/> adresinden ulaşılmıştır).
- 95: Russell IJ, Mease PJ, Smith TR, et al. Efficacy and safety of duloxetine for treatment of fibromyalgia in patients with or without major depressive disorder: results from a 6-month, randomized, double-blind, placebo-controlled, fixed-dose trial. *Pain*. 2008;136(3):432-444.
- 96: Arnold LM, Cappelleri JC, Clair A, et al. Interpreting effect sizes and clinical relevance of pharmacological interventions for fibromyalgia. *J Pain therapy*. 2013;2(1):65-71.
- 97: Moore A, Wiffen P, Kalso EJJ. Antiepileptic drugs for neuropathic pain and fibromyalgia. *JAMA Clinical Evidence Synopsi*s. 2014;312(2):182-183.
- 98: Crofford LJ, Rowbotham MC, Mease PJ, et al. Pregabalin for the treatment of fibromyalgia syndrome: results of a randomized, double-blind, placebo-controlled trial. *Arthritis and Rheumatism*. 2005;52(4):1264-1273.
- 99: Arnold LM, Goldenberg DL, Stanford SB, et al. Gabapentin in the treatment of fibromyalgia: a randomized, double-blind, placebo-controlled, multicenter trial. *Arthritis and Rheumatism*. 2007;56(4):1336-1344.
- 100: Goldenberg DL, Burckhardt C, Crofford LJJ. Management of fibromyalgia syndrome. *Jama*. 2004;292(19):2388-2395.
101. Schmidt-Wilcke T, Diers M. New insights into the pathophysiology and treatment of fibromyalgia. *Biomedicine*s. 2017;5(2):22.
- 102: Goldenberg DL. Pharmacological treatment of fibromyalgia and other chronic musculoskeletal pain. *Rheumatology RC*. 2007;21(3):499-511.