BOL KAO DUGOTRAJNI IZAZOV NAKON ONKOLOŠKOG LIJEČENJA

Ivan Sunara

Visokospecijalizirana klinika za bol, Sveučilišna bolnica Karolinska, Stockholm, Švedska
e-mail: isunara@gmail.com

Definicija. Kad govorimo o boli kod bolesnika preživjelih od karcinoma mislimo na osobe koje su završile kurativno onkološko liječenje, nemaju dokaza aktivne bolesti, ali imaju prisutnu kroničnu bol kao dugoročnu komplikaciju liječenja. Kronična bol povezana s karcinomom dijeli se na kroničnu tumorsku bol (povezanu sa samom malignom bolešću ili njezinim recidivom) te kroničnu bol nakon onkološkog liječenja, koja perzistira nakon završetka terapije i izravna je posljedica kirurškog liječenja, sistemske terapije lijekovima ili radioterapije. Epidemiologija. Broj preživjelih od karcinoma u stalnom je porastu. Petogodišnje preživljenje u Europi premašuje 60%, dok približno 40% bolesnika živi dulje od 10 godina. Bol je učestalija u populaciji preživjelih od karcinoma nego u općoj populaciji (približno 35% u odnosu na 31%), a bol visokog intenziteta prisutna je u oko 16% ovih bolesnika. Bol visokog intenziteta je najučestalija kod osoba s novodijagnosticiranim karcinomom, uznapredovalom bolešću ili nedavno završenim liječenjem. Preživjeli od multiplog mijeloma i raka pluća imaju osobito visoku prevalenciju boli, dok preživjeli od raka dojke, debelog crijeva i prostate, kao i bolesnici s niskorizičnim melanomom, često imaju pojavnost boli usporedivu s općom populacijom. Mehanizam. Dugotrajna bol u preživjelih od karcinoma ima multifaktorijalnu etiologiju. Upala može imati određenu ulogu, pri čemu je interleukin-6 pokazao moguću povezanost s intenzitetom boli, dok su dokazi za ostale citokine nedosljedni. Oštećenje tkiva i živaca uzrokovano onkološkim liječenjem, zajedno s razvojem centralne senzibilizacije, ima ključnu ulogu u nastanku i održavanju kronične boli. Česti bolni sindromi. Kronični bolni sindromi u preživjelih od karcinoma mogu se razviti nakon kirurških zahvata, sistemske terapije (kemoterapija, hormonska i ciljana terapija), te radioterapije (npr. radijacijski inducirana pleksopatija). Najčešći primjeri uključuju: Periferna neuropatija uzrokovana kemoterapijom (engl. CIPN) koja zahvaća do 60% bolesnika tijekom ili neposredno nakon kemoterapije, dok kod 20% bolesnika simptomi ostaju prisutni i nekoliko mjeseci. Najčešće je povezana s primjenom spojeva platine, taksana i vinka-alkaloida. Klinički se očituje utrnulošću, parestezijama, žarećom boli i gubitkom osjeta po tipu „rukavica–čarapa", a simptomi mogu biti prisutni godinama. Artralgija povezana s inhibitorima aromataze: Ovaj se sindrom javlja u približno 47% žena liječenih inhibitorima aromataze zbog raka dojke te je karakteriziran jutarnjom zakočenošću i bolovima u zglobovima šaka, ručnih zglobova, koljena, kukova i kralježnice. Navedeni simptomi mogu negativno utjecati na uzimanje terapije. Vrste boli. Učinkovito liječenje boli zahtijeva preciznu analizu bola. Nociceptivna bol: posljedica oštećenja tkiva (npr. postoperativna bol). Neuropatska

bol: posljedica oštećenja ili bolesti somatosenzornog živčanog sustava (kirurško liječenje, radioterapija, neurotoksična kemoterapija). Nociplastična bol: promijenjena nocicepcija bez jasnog oštećenja tkiva i bez jasnog oštećenja ili bolesti somatosenzornog živčanog sustava, često potaknuta centralnom senzibilizacijom? Posljedice. Kronična bol značajno narušava tjelesnu funkciju, emocionalno zdravlje, kvalitetu sna, radnu sposobnost i ukupnu kvalitetu života preživjelih od karcinoma. Liječenje. Nefarmakološki pristupi. Tjelesna aktivnost ima najsnažnije dokaze za smanjenje boli u različitim kroničnim bolnim sindromima nakon karcinoma. Akupunktura pokazuje učinkovitost, osobito u liječenju muskuloskeletne boli. Edukacija bolesnika i kognitivno-bihevioralna terapija poboljšavaju suočavanje s boli i njenu kontrolu, iako imaju ograničen izravan učinak na intenzitet boli. Farmakološki pristupi. Liječenje treba biti usmjereno prema dominantnom mehanizmu boli. Duloksetin je učinkovit u liječenju CIPN-a, dok amitriptilin i gabapentinoidi mogu ublažiti simptome neuropatske boli. Dugotrajna primjena opioida nije preporučena. Dokazi za druge terapijske mogućnosti (npr. topikalni pripravci, vitamin D, botulinum toksin) i dalje su nedosljedni. Smjernice i preporuke. Smjernice Europskog društva za bol (EFIC) preporučuju rutinsko procjenjivanje boli pri svakom kontaktu s bolesnikom, izradu individualiziranog multimodalnog terapijskog plana, kao i potporu samostalnom liječenju. Također je bitna i redovita reevaluacija te rana uputa specijalistu za liječenje boli u slučaju dugotrajnosti simptoma ili slabe podnošljivosti terapije. Zaključak. Bol u preživjelih od karcinoma je učestala i često dugotrajna. Optimalna skrb zahtijeva sustavno prepoznavanje boli, preciznu analizu bola te multimodalni pristup u skladu s važećim smjernicama. Cilj je poboljšanjea funkcije i kvalitete života ove rastuće populacije.

Ključne riječi

kronična bol, preživjeli karcinom, analiza bola

PAIN AS A LONG-TERM CHALLENGE IN CANCER SURVIVORSHIP

Highly Specialized Pain Clinic, Karolinska University Hospital, Stockholm, Sweden

Definition. Cancer survivors—defined as individuals who have completed curative cancer treatment and have no evidence of active disease. They frequently experience persistent pain as a long-term complication. Chronic cancer-related pain is classified into chronic cancer pain (related to the cancer itself or its recurrence) and chronic post-cancer treatment pain, which persists after completion of therapy and is directly attributable to surgery, systemic therapies, or radiotherapy. Epidemiology. Cancer survivorship is increasing, with 5-year survival rates in Europe exceeding 60%, and approximately 40% of patients surviving longer than 10 years. Pain is more prevalent among cancer survivors than in the general population (approximately 35% vs. 31%), with high-impact pain affecting about 16% of survivors. Pain burden is highest in individuals with recent diagnoses, advanced disease, or recent treatment completion. Survivors of multiple myeloma and lung cancer report particularly high pain prevalence, whereas survivors of breast, colorectal, and prostate cancers, as well as those with low-risk melanoma, often report pain rates comparable to the general

population. Mechanisms. Persistent pain in cancer survivors is multifactorial. Low-grade inflammation may contribute, with interleukin-6 showing modest associations with pain intensity, while evidence for other cytokines remains inconsistent. Treatment-related tissue and nerve injury, together with central sensitization, play major roles in pain persistence. Common Pain Syndromes. Chronic pain syndromes in cancer survivors may develop following surgery, systemic therapies (chemotherapy, hormonal therapy, targeted therapies), and radiotherapy (e.g., radiation-induced plexopathy). Common examples include: Chemotherapy-Induced Peripheral Neuropathy (CIPN): Chemotherapy-induced peripheral neuropathy affects up to 60% of patients during or shortly after treatment, with persistent symptoms reported in approximately 20% several months later. It is most commonly associated with platinum compounds, taxanes, and vinca alkaloids. Symptoms include numbness, tingling, burning pain, and sensory loss in a stocking–glove distribution and may persist for years. Aromatase Inhibitor–Associated Arthralgia: This condition occurs in approximately 47% of women treated with aromatase inhibitors for breast cancer and is characterized by morning stiffness and joint pain involving the hands, wrists, knees, hips, and back. Symptoms may negatively affect treatment adherence. Pain Types. Effective pain management requires accurate pain phenotyping: Nociceptive pain: due to ongoing tissue damage (e.g., postsurgical pain) Neuropathic pain: resulting from injury or disease to the somatosensory nervous system (surgery, radiotherapy, neurotoxic chemotherapy) Nociplastic pain: altered nociception without clear tissue or nerve injury, often driven by central sensitization? Impact. Chronic pain substantially impairs physical functioning, emotional well-being, sleep quality, work participation, and overall quality of life. Management Strategies. Non-pharmacological approaches: Exercise (physical activity) has the strongest evidence for pain reduction across cancer types and pain syndromes. Acupuncture is effective, particularly for musculoskeletal pain. Education and cognitive behavioral therapy improve coping and self-management, although direct effects on pain intensity are limited. Pharmacological approaches: Treatment should be mechanism-based. Duloxetine is effective for CIPN, while amitriptyline and gabapentinoids may improve pain symptoms. Long-term opioid therapy is not recommended. Evidence for other treatments (e.g., topical agents, vitamin D, botulinum toxin) remains inconsistent. Standards and Recommendations. EFIC guidelines recommend routine pain screening at every healthcare encounter, individualized multimodal treatment plans, support for self-management, regular reassessment, and early referral to pain specialists when pain persists or treatment is poorly tolerated. Conclusion. Pain in cancer survivors is common, heterogeneous, and frequently persistent. Optimal care requires systematic screening, accurate pain assessment, and a multimodal, guideline-based approach to reduce long-term suffering and improve quality of life in this growing population.

Keywords

chronic pain, cancer survivors, pain assessment

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