

DIFERENCIJALNA DIJAGNOZA BOLI U LEĐIMA U DJECE – HITNA, AKUTNA I KRONIČNA STANJA



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Prevalencija boli u leđima bilježi sve veći porast u djece i adolescenata. U posljednje je vrijeme prvenstveno dokumentirana povezanost s inaktivnosti, prekomjernom tjelesnom masom, lumbalnom hiperlordozom i prijevremenom intervertebralnom (i.v.) degeneracijom diska. Križobolja u ovoj dobi predstavlja snažni prediktor za razvoj kroniciteta. Klinički entiteti čija simptomatologija upućuje na hitnu kliničku procjenu odnose se na discitis i intervertebralni osteomijelitis, maligne bolesti, epiduralni apsces, transversalni mijelitis, siringomijeliju, septički sakroileitis i sindrom sapete moždine. Najčešće u mladih od 5 godina u diferencijalnoj dijagnozi treba uzeti u obzir infektivnu etiologiju (osteomijelitis kralješka i discitis). Karakterizira ih iritabilnost, bolovi u leđima bez sistemskih manifestacija, pojava otekline, odbijanje hoda na prstima i petama ili inklinacije trupa. Radiološki (RTG) nalazi mogu inicijalno biti uredni, no unutar 2 do 3 tjedna prikazuje se suženje i.v. prostora; a magnetska rezonanca (MR) predstavlja modalitet za razlikovanje ova dva entiteta. Liječi se antibioticima. U istoj dobnoj skupini moguć je razvoj malignih bolesti sa sve većim rizikom od nastanka tumora kostiju, npr. osteoid osteom i osteoblastom. Noćna bol u leđima, gubitak tjelesne mase, mijelopatski simptomi (slabost, nestabilnost u hodu), palpacijska osjetljivost spinoznih nastavka su patognomonični te je nerijetko prisutan prethodni malignitet iz anamneze. Uz laboratorijsku obradu neophodna je MR. Liječenje je neurokirurško i/ili onkološko. Epiduralni apsces karakterizira neurološki ispad, bol u leđima, febrilitet; rijetko se javlja u imunokompetentnih. Potrebna je hitna evaluacija MR-om i neurokirurško liječenje. Senzomotorni ispad, bol u leđima, disfunkcija crijeva i mokraćnog mjehura javljaju se u transversalnog mijelitisa. Klinički simptomi i znakovi ne moraju korelirati s razinom vertebralnog segmenta. Potrebna je hitna analiza likvora i MR. Kod siringomijelije pogoršanje simptoma se javlja tijekom promjene položaja i Valsalva manevra uz bol i zakočenost. Siringomijelija u vratu može biti povezana s Arnold-Chiarijevom malformacijom. Dijagnosticira se MR-om. Hitno neurokirurško liječenje je indicirano kod neurološkog deficita. Septički sakroileitis praćen je febrilitetom, oteklinom i boli sakroilijakalnog zgloba (SIZ). Dob je bimodalno distribuirana: od 6 mjeseci do 4 godine i adolescenti. Laboratorijski nalazi su konzistentni s infektivnim procesom. Kod sindroma sapete moždine bol u leđima se pogoršava tijekom aktivnosti, uz atrofiju mišića potkoljenice, disfunkciju mokraćnog mjehura, slabost donjih ekstremiteta i gubitak osjeta. Prvi znak motoričke disfunkcije je oslabljena dorzifleksija stopala. Ponekad se javlja progresivna skolioza. MR je dijagnostika izbora i zahtijeva hitno neurokirurško liječenje. Najčešći uzorci akutne boli u leđima pripisuju se

herniji i.v. diska, istegnuću i spazmu mišića, vertebralnom prijelomu, infekciji ili tumorskom procesu. Iako se često putem MR-a prikazuju patomorfološke promjene i.v. diska, simptomatska lumbalna hernija s afekcijom korijena živca je prilično rijetka. Oko 60% adolescenata sa simptomatskom hernijom navodi akutni događaj koji je prethodio nastupu boli. Prilikom akutizacije javlja se križobolja s radikulopatijom, praćena pozitivnim testovima istezanja spinalnih korijenova, ograničenom lumbalnom fleksijom. Relativni odmor i/ili fizikalna terapija najčešći su modaliteti liječenja. Paraspinalna bol, palpacijska osjetljivost paravertebralne muskulature bez iradijacije u ekstremitete tipična je za istegnuće leđnih mišića. Nije potrebna RTG evaluacija. Fizikalna terapija propisuje se u slučaju perzistencije tegoba. Mišićni spazam ekstenzora kralježnice može se pripisati rastu, koji dovodi do zategnutosti mišića natkoljenice te rezultira stražnjim nagibom zdjelice. Vertebralni prijelom predstavlja akutnu ozljedu sa žarišnom bolnom osjetljivošću u medijalnoj liniji. Može biti udružen s drugim ozljedama, slabošću ekstremiteta i/ili radikularnim bolovima. Potrebna je hitna RTG evaluacija i specijalističko zbrinjavanje. Adolescentska idiopatska skolioza jest trodimenzionalna deformacija kralježnice s iskrivljenjem za više od 10° kuta prema Cobbu na RTG-u, koja rezultira zavojitošću kralježnice. Javlja se kod 2-3% adolescenata, a ukupna prevalencija kreće se od 0,4 do 5,2%. Većina ih je nižih vrijednosti kuta po Cobbu i kao takve imaju nizak potencijal za progresiju i stoga su klinički beznačajne. Skolioze najčešće ne uzrokuju bolove u leđima. One brzo progresivne i veće od 40° do 50° mogu dovesti do progresivnih konstantnih bolova, narušavajući izgled te kompromitirati plućnu funkciju. Potreban je RTG cijele kralježnice i krila ilijačne kosti. Metoda po Risseru temelji se na ocjeni stupnja okoštavanja apofize ilijačne kosti. Niže vrijednosti ukazuju na veći potencijal rasta i rizika od napredovanja zakrivljenosti. Potrebno je upućivanje fizijatru/ortopedu za mlade od 12 godina s progresivnom skoliozom, intenzivnim bolovima i strukturalnim defektima (hemivertebra) ili Cobbovim kutom >20°, napose >40°. Scheuermannova kifoza je osteohondroza koja nastaje zbog abnormalnosti vertebralne epifizne ploče rasta. Dijagnosticira se klinički i RTG-om uz pozitivne Sorensenove kriterije. Između 8. i 12. godine prezentira se bolovima u torakalnoj kralježnici, povećanom torakalnom ili torakolumbalnom (ThL) rigidnom kifozom, često s oštrim apeksom, koja se ne korigira voljnom ekstenzijom ili u pronaciji. Sorensenovi kriteriji za postavljanje dijagnoze uključuju 3 ili više sukcesivnih periapikalnih kralježaka anteriorno klinasto formiranih za >5°; prošireni su Bradfordovim kriterijima koji dodaju i nepravilnosti pokrovnih ploha tijela kralježaka te torakalnu kifozu >40° ili kifozu ThL prijelaza. Indiciran je RTG, te MR u izraženih simptoma refrakternih na fizikalnu terapiju. Kirurško liječenje se provodi uslijed respiratornih poteškoća ili boli koja ne odgovara na farmakološko/nefarmakološko liječenje. Spondiloliza predstavlja stres frakturu interartikularnog nastavka kralješka i najčešće je locirana na V lumbalnom vertebralnom segmentu (71% do 95%). Spondiloliza je najčešća u adolescentnih atletičara, gimnastičara, nogometaša, ronilaca, koji su često izloženi ponavljajućim ekstenzijama lumbalne kralježnice (skr. LK). Bol se javlja prilikom reklinacije LK-a koja može izazvati i radikularne

simptome. Klinički je pozitivan test stajanja na jednoj nozi, zategnutost „hamstringsa“ i ograničena reklinacija. Potvrđuje se RTG-om, a putem MR-a ako je negativan nalaz na RTG-u radi suspektne stres frakture. Propisuje se relativni odmor, fizikalna terapija i ortoza u slučaju konstantne boli. Apofizitis ilijačnog grebena dijagnosticira se bolnom osjetljivošću koja se postupno pogoršava aktivnošću (skakanje, trčanje, rotacije trupa). U djece između 12 i 17 godina s koštanom nezrelošću, postoji viši rizik od skraćivanja natkoljениčne muskulature; dijagnosticira se ultrasonografski te je prisutna osjetljivost na dodir sonde. Preporučuje se relativni odmor, krioterapija, NSAR i vježbe istezanja skraćene natkoljene muskulature. Bolesnici sa spondiloartritisom, uz buđenje zbog bolova u drugom dijelu noći, mogu imati pridruženu produženu jutarnju zakočenost, poliartritis, uveitis, osjetljivost SIZ-a na palpaciju, kao i pozitivnu obiteljsku anamnezu, uz često pozitivan HLA-B27. Generalizirana bol više od tri mjeseca, umor, osjetljivost na senzoričke podražaje upućuje na fibromialgiju i generalizirani bolni sindrom. Najčešće se javljaju u adolescenata, a simptomi nisu ograničeni samo na leđa i liječi se multidisciplinarno.

Ključne riječi:

hitna, akutna, kronična, bol, leđa, djeca

DIFFERENTIAL DIAGNOSIS OF BACK PAIN IN CHILDREN - URGENT, ACUTE AND CHRONIC CONDITIONS

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The prevalence of back pain is increasingly rising among children and adolescents. Recently, it has primarily been associated with inactivity, increased body weight, lumbar hyperlordosis, and premature intervertebral (i.v.) disc degeneration. Low back pain (LBP) at this age is a strong predictor for the development of chronicity. Clinical entities whose symptomatology suggests an urgent clinical assessment include infectious etiology, malignancies, epidural abscess, transverse myelitis, syringomyelia, septic sacroileitis, and tethered chord syndrome. Vertebral osteomyelitis and discitis etiology should be considered in children under 5 years in the differential diagnosis and are characterized by irritability, back pain without systemic manifestations, swelling, refusal to heel/toe walking, or trunk inclination. X-ray findings may initially be normal, but within 2 to 3 weeks, narrowing of the i.v. space is observed; magnetic resonance imaging (MRI) is used to differentiate between these two entities. In the same age group, the development of malignancies is possible, with an increasing risk of bone tumors, e.g., osteoid osteoma and osteoblastoma. Night back pain, weight loss, myelopathic symptoms (weakness, gait instability), and palpation tenderness of the spinous processes are pathognomonic, and a previous malignancy is often present in the medical history. Along with laboratory tests, MRI is essential. Treatment is neurosurgical and/or oncological. Epidural abscess is characterized by neurological deficits, back pain, and fever. Urgent MRI and neurosurgery are mandatory. Sensory and motor deficits, back pain, and bowel/bladder dysfunction occur in transverse myelitis. Urgent liquor analysis and MRI are required. In syringomyelia, symptom worsening occurs

during changes in position and the Valsalva maneuver, along with pain and stiffness. When in neck, it can be associated with Arnold-Chiari malformation and diagnosed by MRI. Urgent neurosurgery is indicated for neurological deficits. Septic sacroileitis is accompanied by fever, swelling, and sacroiliac joint (SIJ) pain. Age distribution is bimodal: from 6 months to 4 years, and adolescents. Laboratory findings are consistent with an infectious process. In tethered cord syndrome, back pain worsens during activity, along with calf muscles atrophy, bladder dysfunction, lower extremities weakness, and sensation loss. The first sign of motor dysfunction is weakened foot dorsiflexion. Sometimes progressive scoliosis occurs. MRI and urgent neurosurgical treatment are required. The most common patterns of acute back pain are attributed to i.v. herniation, muscle strain and spasm, vertebral fracture (VF), infection, or a tumor process. Although morphological changes in the i.v. disc are often seen on MRI, symptomatic lumbar hernia with nerve root involvement is quite rare. About 60% of adolescents with symptomatic hernia report an acute event preceding the pain onset. In acute phase LBP with radiculopathy occurs, accompanied by positive Lasegue test and limited lumbar flexion. Relative rest and/or physical therapy (PT) are prescribed. Paraspinal pain, tenderness on palpation of the paravertebral muscles without radiation to the extremities is typical for back muscle strain. X-ray evaluation is not necessary. PT is for persistent symptoms. Spinal extensors muscle spasm can be attributed to growth, which leads to tightness of the thigh muscles and results in posterior pelvic tilt. A VF represents an acute injury with focal tenderness along the midline. It may be associated with other injuries, extremity weakness, and/or radicular pain. Emergency X-ray evaluation is required along with specialist care. Adolescent idiopathic scoliosis is a three-dimensional deformity of the spine with a curvature of more than 10° according to the Cobb angle on X-ray. It occurs in 2-3% of adolescents, with an overall prevalence ranging from 0.4 to 5.2%. Most cases have lower Cobb angles and, as such, have a low progression potential and are therefore clinically insignificant. Scoliosis most often does not cause back pain. Rapidly progressive curves greater than 40° to 50° can lead to progressive, constant pain, impair appearance, and compromise lung function. X-ray of the entire spine and iliac crest is necessary. The Risser method is based on assessing the degree of ossification of the iliac apophysis. Lower values indicate a higher growth potential and risk of curve progression. Referral to a physiatrist/orthopedist is necessary for children under 12 years with progressive scoliosis, intense pain, and structural deformities (hemivertebra) or a Cobb angle $>20^\circ$, especially $>40^\circ$. Scheuermann's kyphosis is an osteochondrosis that occurs due to abnormalities of the vertebral growth epiphyseal plate (VGEP). It is diagnosed clinically and by X-ray with positive Sorensen criteria. Between the ages of 8 and 12, it presents with thoracic spine pain, increased thoracic or thoracolumbar (ThL) rigid kyphosis, often with a sharp apex, which cannot be corrected by voluntary extension or in pronation. Sorensen's criteria, include 3 or more successive periapical vertebrae wedged anteriorly more than 5° , are extended by Bradford's criteria, which also include irregularities of the VGEP and thoracic kyphosis $>40^\circ$ or kyphosis of the ThL junction. X-ray is indicated, and MRI is recommended for symptoms refractory to PT. Surgical treatment

is performed due to respiratory difficulties or refractory pain. Spondylolysis represents a stress fracture of the vertebral pars interarticularis, and is most commonly located at the V vertebral segment (71% to 95%). Spondylolysis is most common in adolescent athletes who are often exposed to repeated lumbar extensions, which can also trigger radicular symptoms. Clinically, a positive stork test, hamstring tightness, and limited hyperextension are observed. It is confirmed by X-ray, and by MRI if a stress fracture is suspected. Relative rest, PT, and bracing are prescribed. Apophysitis of the iliac crest is diagnosed by painful tenderness that gradually worsens with activity. In children aged 12-17 with skeletal immaturity, there is a higher risk of thigh muscles shortening; it is diagnosed by ultrasound and there is tenderness when the probe is touched. Relative rest, cryotherapy, NSAIDs, and stretching exercises are recommended. Patients with spondyloarthritis, in addition to waking up due to pain in the second part of the night, may have associated prolonged morning stiffness, polyarthritis, uveitis, SIJ tenderness on palpation, as well as a positive family history, often with a positive HLA-B27. Generalized pain for more than three months, fatigue, and sensitivity to sensory stimuli suggest fibromyalgia and a generalized pain syndrome. They most commonly occur in adolescents, and a multidisciplinary approach is required.

Keywords

urgent, acute, chronic, back, pain, children

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