American Academy of Orthopaedic Surgeons/ ASSH Clinical Practice Guideline Summary Management of Carpal Tunnel Syndrome

Lauren M. Shapiro, MD, MS

Robin N. Kamal, MD, MBA, FAAOS

Management of Carpal Tunnel Syndrome Work Group

American Academy of Orthopaedic Surgeons

ABSTRACT

Management of Carpal Tunnel Syndrome Evidence-Based Clinical Practice Guideline is based on a systematic review of published studies with regard to the diagnosis and treatment of carpal tunnel syndrome in adult patients (≥18 years of age). The scope of this guideline addresses the diagnosis and treatment of carpal tunnel syndrome and contains nine recommendations to assist orthopaedic surgeons and all qualified clinicians managing patients presenting with signs and symptoms which may be attributable to carpal tunnel syndrome based on the best current available evidence. It is also intended to serve as an information resource for professional healthcare practitioners, health services researchers, and developers of practice guidelines and recommendations. In addition to providing pragmatic practice recommendations, this guideline also highlights gaps in the literature and informs areas for future research and quality measure development.

From the Department of Orthopaedic Surgery, University of California, San Francisco, CA (Shapiro), Department of Orthopaedic Surgery, Standford University Medical Center, Stanford, CA (Kamal).

Correspondence to Dr. Shapiro: lauren.shapiro@ucsf.edu

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The complete document, *Management of Carpal Tunnel Syndrome Evidence-Based Clinical Practice Guideline,* includes all tables, and figures, and is available at www.aaos.org/cts2cpg

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Overview and Rationale

The American Academy of Orthopaedic Surgeons (AAOS), with input from representatives from the American Academy of Physical Medicine and Rehabilitation, the Amerian College of Radiology, the American Society of Hand Therapists, the American College of Occupational and Environmental Medicine, the American Association for Hand Surgery, and the American Society for Surgery of the Hand, recently published their clinical practice guideline (CPG), Management of Carpal Tunnel Syndrome.[1] This CPG was approved by the AAOS Board of Directors in May 2024.

Carpal tunnel syndrome, compression of the median nerve as it traverses the carpal tunnel, is the most prevalent compressive neuropathy.[2,3] Pressure elevations within the carpal tunnel may lead to initial symptoms, including numbness, paresthesias, and pain within the median nerve distribution. Untreated, long-standing compression may lead to permanent functional and sensory loss in the hand and radial three digits. Carpal tunnel syndrome is

responsible for a substantial amount of morbidity and economic burden across the globe, making it a notable population health target. In the general population, the incidence of carpal tunnel syndrome ranges from 1% to 5%.[2-5] Carpal tunnel syndrome is most common in adults aged 40 to 60 years and is more prevalent in women than in men. Carpal tunnel accounts for the greatest median number of days away from work due to injuries or illness.[6] From an economic perspective, the shear volume of carpal tunnel–release procedures make optimizing the treatment of this common condition impactful. For example, prior studies have estimated an episode of carpal tunnel release surgery cost in excess of $40,000,[7] with one study in a workers compensation population with claims over the 5-year study period totaling $310 million.[8] To optimize the cost-effectiveness for treatment of carpal tunnel syndrome in the United States, multiple cost-effectiveness analyses have been completed with varying results, largely due to the changing landscape in office-based procedures, perspectives used, and cost data.[9]

There are many decision points across the care continuum for patients presenting with signs and symptoms of carpal tunnel syndrome. For example, there are multiple methods by which to diagnose and treat carpal tunnel syndrome. While the routine use of electrodiagnostic studies for the clinical diagnosis of carpal tunnel syndrome is common, this practice is debated.[10] There has been growing evidence on the use of the carpal tunnel syndrome 6 (CTS-6), while employing electrodiagnostic studies and ultrasonography in equivocal cases or where the positive predictive value of the CTS-6 for CTS is low with continued suspicion for carpal tunnel or other neurologic conditions.[11,12] From a treatment perspective, several options exist (eg, injections, surgical release), with varying levels of supportive evidence. Furthermore, various nuances exist within treatment options (eg, type of injection, mode of anesthesia for surgical release). Given the substantial burden of carpal tunnel syndrome, the increasing incidence of surgical treatment, and the evolving healthcare landscape that favors cost-effective and high-quality care, understanding the evidence behind the diagnosis and treatment options is critical to optimize long-term outcomes.

Therefore, the American Academy of Orthopaedic Surgeons (AAOS) developed an evidence-based, clinical practice guideline (CPG) to aid practitioners in the diagnosis and treatment of patients presenting with symptoms of carpal tunnel syndrome.[1] Furthermore, the CPG represents a resource demonstrating areas that need additional investigation to provide improved evidence-based guidelines for the diagnosis and treatment of carpal tunnel syndrome.

In summary, the carpal tunnel syndrome guideline involved reviewing almost 5,900 abstracts and more than 1,500 full-text articles to develop nine recommendations supported by 270 research articles meeting stringent inclusion criteria. Each recommendation is based on a systematic review of the research-related topic that resulted in six recommendations classified as high and three recommendations classified as moderate. Strength of recommendation is assigned based on the quality of the supporting evidence. The strength of recommendation also takes into account the quality, quantity, and the trade-offs between the benefits and harms of a treatment, the magnitude of a treatment's effect, and whether there are data on critical outcomes.

Guideline Summary

The developed recommendations are meant to aid in the clinical decision-making process for the diagnosis and treatment of patients presenting with symptoms of carpal tunnel syndrome. Use of these guidelines helps clinicians determine the appropriate diagnostic tools and intervention/s that are likely to provide the greatest long-term benefit. This CPG set offers a substantially updated perspective from the previously published 2016 iteration. The 2016 CPG offered 35 statements, nine of which were supported by strong evidence, 13 were supported by moderate evidence, and 13 recommendations were based on limited evidence. The updated 2024 CPG consists of nine statements, six of which provide strong evidence and three of which provide moderate evidence.

There are two strong recommendations in the updated 2024 CPG that provide evidence-based guidance on the diagnosis of carpal tunnel syndrome. By contrast, the prior 2016 CPG provided several guidelines related to physical signs and maneuvers (eg, Phalen test, two-points discrimination), interview topics (eg, age, symptom duration), and other tests (eg, ultrasonography, MRI, nerve conduction studies) that varied in their strength and evidence in support of ruling-in, ruling-out, or diagnosing carpal tunnel syndrome. The 2024 CPG provides a similar moderate recommendation against the use of MRI for the diagnosis of carpal tunnel syndrome. This is based on similar evidence from the prior CPG with an update similarly against the use of neurodynamic testing for the diagnosis of carpal tunnel

syndrome, based on a randomized controlled trial demonstrating poor specificity and moderate sensitivity compared with electrodiagnostic testing.[13] The 2024 CPG provides a strong recommendation for the use of CTS-6 in the diagnosis of carpal tunnel syndrome and a moderate recommendation against the use of MRI and upper limb neurodynamic testing for the diagnosis of carpal tunnel syndrome. The former is based on 10 high-quality and five moderate-quality studies. For example, Fowler et al compared the sensitivity and specificity of ultrasonography and neurodiagnostic testing by using the CTS-6 as a reference standard. Ultrasonography had an 89% sensitivity and 90% specificity, and electrodiagnostic testing had an 89% sensitivity and 90% specificity.[13] This is based in part off a prior study by Fowler et al[11] that used latent class analysis to compare the sensitivity and specificity of ultrasonography, nerve conduction studies, and the CTS-6 that demonstrated the sensitivity and specificities of ultrasonography (91% and 94%), CTS-6 (95% and 91%), and nerve conduction studies (91% and 83%). Furthermore, Graham et al evaluated the value added by electrodiagnostic testing in the diagnosis of carpal tunnel syndrome.[14] In this investigation, electrodiagnostic testing was used as the reference standard to test the correlation of the pretest probability of having carpal tunnel syndrome using the CTS-6. The authors noted a correlation as high as 0.9 and thus note that for most patients considered to have carpal tunnel based on their history and physical signs, electrodiagnostic studies do not change the probability of a carpal tunnel diagnosis to a clinically relevant extent. Because no strong evidence exists that demonstrated the clinical superiority of one test over another, we highlight in this CPG that CTS-6 can be used as a diagnostic and/or screening tool, whereas the utilization of ultrasonography or electrodiagnostic studies can be used as diagnostic tests when the positive predictive value of the CTS-6 is low. Although less well investigated, practitioners can consider the risks and benefits when selecting a diagnostic test, for example, the invasive and painful nature of electrodiagnostic tests and the added time and cost associated with the use of both electrodiagnostic tests and ultrasonography. Given that patients prefer a collaborative approach to preoperative care decisions,[15] such risks and benefits should be discussed with patients when evaluating the diagnostic measures being used for carpal tunnel syndrome.

Two recommendations discuss the utilization of injections. The first is a strong recommendation against the use of corticosteroid injection for long-term improvement of carpal tunnel, whereas the second is a strong recommendation that the use of platelet-rich plasma does not provide long-term benefits in the nonsurgical treatment of carpal tunnel. The former represents a change from the prior guideline that demonstrated strong support for the use of steroid injections in the improvement of patient-reported outcomes. The latter was not evaluated in the prior CPG. The prior guideline evaluating the use of a steroid injection cited Atroshi et al[16] in a study that compared a steroid injection with placebo for the treatment of carpal tunnel syndrome at 10 weeks and 1 year. Although the authors noted symptomatic improvement at 10 weeks, no difference was observed at 1 year. The updated CPG investigates specifically long-term outcomes (>6 months) and includes three studies, including the aforementioned study, that demonstrate no long-term benefits as compared with a placebo or saline.[16-18] This CPG update further details strong evidence against the utilization of a platelet-rich plasma (PRP) injection (leukocyte rich or poor) for long-term symptomatic relief of CTS. The CPG discussing the use of PRP is supported by three randomized controlled trials. The first by Chen et al[19] was a 12-month follow-up study comparing PRP with saline control and demonstrated similar improvement in symptom severity scale and functional status at all time points without clinically meaningful differences, although cross-sectional area and electrodiagnostic parameters showed some beneficial effect from PRP as compared with saline.[19] Raeissadat et al compared the effects of wrist splitting versus wrist splinting combined with a single local PRP injection.[20] The authors found that over the 10-week treatment period, a single PRP injection did not markedly enhance the effects of conservative treatment in terms of pain, symptom severity, functional status, and electrophysiological parameters. By contrast, Malahias[21] demonstrated that PRP led to increased success rates defined by a 25% difference in Q-DASH scores in comparison to placebo at 12 weeks.

There are five moderate-to-strong recommendations that provide guidance around the care of perioperative patients with carpal tunnel syndrome. The updated guideline provides strong evidence suggesting that there is no difference in patient-reported outcomes between a mini–open carpal tunnel release and an endoscopic carpal tunnel release, which is updated from the prior guideline that provided evidence that 'if surgery was chosen, a practitioner might consider using endoscopic carpal tunnel release based on possible short-term benefits.' The updated guideline is based on multiple high- and moderate-quality studies that consistently demonstrate no difference in long-term outcomes (eg, patient-reported outcome measures,

range of motion, grip strength) between the two techniques.[22-27] Of note, Carrol et al[28] conducted a retrospective cohort study of more than 4,300 patients undergoing an isolated endoscopic or open carpal tunnel release and demonstrated that endoscopic carpal tunnel release was associated with a 2.96 times greater likelihood of requiring a revision carpal tunnel release within 1 year as compared with an open carpal tunnel release. This study was published after the CPG search was done, and thus, it was not included.

The new guideline provides stronger evidence for the utilization of local anesthesia alone for carpal tunnel release (strong evidence from limited evidence). This updated recommendation is based on three high-quality and six low-quality studies, including three randomized controlled trials that evaluated local anesthesia versus IV regional anesthesia with outcomes favoring local anesthesia that include decreased tourniquet or operating room time with no differences in patient-reported outcomes[29] and lower intraoperative and postoperative pain and analgesic use.[30,31] Of note, the potential benefits and harms associated with each technique should be discussed with patients, and we support a shared decision-making approach that aligns patients' values and preferences with their treatment course.[15,32,33] One high-quality, five moderate-quality, and one low-quality study were included in support of the guideline regarding immobilization. The high-quality study by Logli et al[34] was a randomized controlled trial comparing no orthosis, removable orthosis, and plaster nonremovable orthosis after mini–open carpal tunnel release that demonstrated no statistically significant differences in any outcomes at any follow-up period except at 6 and 12 months where the dominant-hand lateral pinch strength in the nonremovable orthosis group was weaker than the other cohorts.

The updated CPG evaluated postoperative pain control and provides strong evidence that nonsteroidal anti-inflammatory drugs (NSAIDs) and/or acetaminophen should be used for postoperative pain management. This guideline is based on multiple high-quality studies that demonstrate no notable differences in observed outcomes for patients treated with acetaminophen versus those who were given NSAIDs (naproxen or ibuprofen). Although one high-quality article demonstrated no notable differences in outcomes for those treated with acetaminophen versus those given matching placebo pills,[35] Ilyas et al[36] demonstrated that the those who took acetaminophen or ibuprofen after carpal tunnel release had statistically significantly lower pain scores than those who took oxycodone.[36,37] Notably, adverse events were markedly less common in the cohort taking NSAIDs or acetaminophen in comparison to those taking oxycodone.

As healthcare delivery continues to improve value, quality, and patient-centered care, the workgroup sought to specifically evaluate the evidence related to topics, including site of service, prophylactic antibiotics, and preoperative and adjunctive testing. Although no high- or moderate-quality studies were identified to address site of service, five low-quality studies, mostly single-surgeon, single-institution, and/or retrospective or database studies were identified that consistently demonstrated that carpal tunnel release in the office setting resulted in no increased risk of complications with higher ratings of patient experience and satisfaction when compared with surgical release in the operating room.[38-42] Although no identified studies were found assessing the effectiveness of preoperative antibiotics in preventing infection after carpal tunnel surgery exclusively, multiple studies were found assessing short soft-tissue hand surgery (including CTS) that showed no clinical effect of antibiotics in preventing postoperative surgical site infections.[43-45] Similarly, although no studies were found evaluating the utilization of preoperative testing (eg, CXR, ECG, laboratory tests) for carpal tunnel patients only, one study evaluated the use of preoperative testing for those with common hand conditions (including carpal tunnel) and demonstrated an increased generation of unnecessary downstream tests, procedures, and greater per-patient reimbursements.[46] Studies conducted outside of hand surgery consistently demonstrate that preoperative testing for healthy patients undergoing minor procedures leads to delays in care, unnecessary downstream testing and care, and added costs,[47-51] and these unnecessary steps could also exacerbate delays in care for vulnerable populations.[52] Furthermore, in evaluating adjunctive testing for those with carpal tunnel, it is the opinion of the workgroup that when multiple risk factors for amyloidosis are present, pathological analysis of tenosynovium may be done. Although the diagnosis of amyloidosis is rare, given the lack of high-quality evidence to guide the decision to perform pathological analysis of tenosynovium, it is the opinion of the workgroup that the decision to perform pathological analysis on tenosynovium of patients undergoing carpal tunnel release should be guided by patient preference and risk factors.[53] The above limited and consensus recommendations may improve value, quality, and patient-centered care and should be taken into

account across the care continuum of patients with carpal tunnel syndrome.

The CPG provides an update regarding the association of keyboarding and clerical work to note that in the absence of reliable evidence, it is the opinion of the workgroup that there is no association between high keyboard use and carpal tunnel syndrome. This is based on the lack of high- or moderate-quality evidence evaluating the association.

This recommendation is an update from the prior version that provided moderate evidence supporting the association of computer work with carpal tunnel syndrome. The prior guideline was supported by three moderate-quality studies, all of which were recognized as low quality for this CPG given that they were cross-sectional in nature, used an author developed and participant completed questionnaire regarding hours of computer work/keyboarding, and/or did not use a validated method by which to diagnose carpal tunnel (Ali, 2006; Coggon, 2013; Eleftheriou, 2012). In the updated CPG, one low-quality study that met inclusion criteria (Eleftheriou et al 2012) reported a statistically significant association between high keyboard use and carpal tunnel syndrome. The workgroup acknowledges the historical controversy on computer work/keyboarding as it relates to Worker's Compensation; however, we recommend, similar to Goldfarb in 2016, understanding the medical and legal considerations of this association.[54] The conclusion from the workgroup was that no studies to date have delineated a causal mechanism between keyboarding and/or clerical work and carpal tunnel.

Recommendations

This summary of recommendations of the AAOS *Management of Carpal Tunnel Syndrome Evidence-Based Clinical Practice Guideline* contains a list of evidence-based prognostic and treatment recommendations. Discussions of how each recommendation was developed and the complete evidence report are contained in the full guideline at www.aaos.org/cts2cpg. Readers are urged to consult the full guideline for the comprehensive evaluation of the available scientific studies. The recommendations were established using methods of evidence-based medicine that rigorously control for bias, enhance transparency, and promote reproducibility. An exhaustive literature search was conducted resulting initially in more than 1,500 articles for full review. The articles were then graded for quality and aligned with the work group's patients, interventions, and outcomes of concern. For CPG PICO (ie, population, intervention, comparison, and outcome) questions that returned no evidence from the systematic literature review, the work group used the established AAOS CPG methodology to generate five companion consensus statements that there is no association between high keyboarding use and carpal tunnel syndrome, that the utilization of field sterility or minimal surgical draping instead of full surgical draping should be considered adequate for carpal tunnel release surgery, decreasing the use of routine perioperative testing (eg, laboratory tests, CXR, and ECG); that performing pathological analysis of the tenosynovium when multiple risk factors for amyloidosis are present may be warranted, and regarding consideration for the use of tramadol over opioids for postoperative pain management.

The summary of recommendations is not intended to stand alone. Medical care should be based on evidence, a physician's expert judgement, and the patient's circumstances, values, preferences, and rights. A patient-centered discussion that takes an individual patient's values and preferences into account can inform appropriate decision making to appropriately apply this clinical practice guideline.[55-57]

Recommendations are formed when there is sufficient evidence by which to create a directional statement. A strong recommendation means that the quality of the supporting evidence is high. A moderate recommendation means that the benefits exceed the potential harm (or that the potential harm clearly exceeds the benefits in the case of a negative recommendation), but the quality/applicability of the supporting evidence is not as strong. Options are formulated from no evidence, low-quality evidence, or conflicting supporting evidence. Future evidence cause options to be upgraded to strong or moderate recommendations for treatment. A limited option means that there is a lack of compelling evidence that has resulted in an unclear balance between benefits and potential harm. A consensus option means that expert opinion supports the guideline recommendation, although there is no available empirical evidence that meets the inclusion criteria of the guideline's systematic review (Table 1).

Summary of Recommendations

Recommendations are formed when there is sufficient evidence by which to create a directional statement. This is defined as evidence from two or more high-quality studies (ie, a strong recommendation), two or more

Table 1. Strength of Recommendations Descriptions

Strength of Recommendation	Overall Strength of Evidence	Description of Evidence Quality	Strength Visual
Strong	High[a]	Evidence from two or more "high"-quality studies with consistent findings for recommending for or against the intervention. Also requires no reasons to downgrade from the EtD framework	
Moderate	Moderate[a]	Evidence from two or more "moderate"-quality studies with consistent findings, or evidence from a single "high"-quality study for recommending for or against the intervention. Also requires no or only minor concerns addressed in the EtD framework	
Limited	Low[a]	Evidence from two or more "low"-quality studies with consistent findings or evidence from a single "moderate"-quality study recommending for or against the intervention. Or Rec is downgraded using the EtD framework	
Consensus	Very low, or consensus[a]	Evidence from one "low"-quality study, no supporting evidence, or Rec is downgraded using the EtD framework. In the absence of sufficient evidence, the guideline work group is making a statement based on their clinical opinion	
Unless statement was upgraded or downgraded in strength, using the EtD Framework			

moderate-quality studies (ie, a moderate recommendation), or statements resulting in a strong or moderate strength following evidence to decision framework upgrading and/or downgrading.

Diagnosis: Carpal Tunnel Syndrome-6, Ultrasonography, NCV/EMG

Strong evidence suggests that CTS-6 can be used to diagnose carpal tunnel syndrome, in lieu of the routine use of ultrasonography or NCV/.EMG.

Strength of recommendation: Strong.

Implication: Practitioners should follow a strong recommendation unless a clear and compelling rationale for an alternative approach is present.

Diagnosis: MRI, Upper Limb Neurodynamic Testing

Moderate evidence suggests that MRI and upper limb neurodynamic testing should not be used to diagnose carpal tunnel syndrome.

Strength of recommendation: Moderate.

Implication: Practitioners should generally follow a moderate recommendation but remain alert to new information and be sensitive to patient preferences.

Corticosteroid Injection

Strong evidence suggests that corticosteroid injection does not provide long-term improvement of carpal tunnel syndrome.

Strength of recommendation: Strong.

Implication: Practitioners should follow a strong recommendation unless a clear and compelling rationale for an alternative approach is present.

Platelet-Rich Plasma Injection

Strong evidence suggests that PRP injection does not provide long-term benefits in nonsurgical treatment of

carpal tunnel syndrome (leukocyte rich or leukocyte poor PRP).

Strength of recommendation: Strong.

Implication: Practitioners should follow a strong recommendation unless a clear and compelling rationale for an alternative approach is present.

Surgical Release Technique

Strong evidence suggests that there is no difference in patient-reported outcomes between a mini–open carpal tunnel release and an endoscopic carpal tunnel release.

Strength of recommendation: Strong.

Implication: Practitioners should follow a strong recommendation unless a clear and compelling rationale for an alternative approach is present.

Modes of Anesthesia

Strong evidence suggest local anesthesia alone can be used for carpal tunnel release.

Strength of recommendation: Strong.

Implication: Practitioners should follow a strong recommendation unless a clear and compelling rationale for an alternative approach is present.

Postoperative Therapy

Moderate evidence suggests postoperative supervised therapy should not be routinely prescribed after carpal tunnel release.

Strength of recommendation: Moderate.

Implication: Practitioners should generally follow a moderate recommendation but remain alert to new information and be sensitive to patient preferences.

Postoperative Immobilization

Moderate evidence suggests that immobilization through sling or orthosis (eg, splint, brace) should not be used after carpal tunnel release.

Strength of recommendation: Moderate.

Implication: Practitioners should generally follow a moderate recommendation but remain alert to new information and be sensitive to patient preferences.

Postoperative Pain: Nonsteroidal Anti-inflammatory Drugs, Acetaminophen

Strong evidence suggests that NSAIDs and/or acetaminophen should be used after carpal tunnel release for postoperative pain management.

Strength of recommendation: Strong.

Implication: Practitioners should follow a strong recommendation unless a clear and compelling rationale for an alternative approach is present.

Summary of Options

Options are formed when there is little or no evidence on a topic. This is defined as low-quality evidence or a single moderate-quality study (ie, a limited strength option), no evidence or only conflicting evidence (ie, a consensus option), or statements resulting in a limited or consensus strength following evidence to decision framework upgrading and/or downgrading.

Risk Factors: Keyboarding, Clerical Work

In the absence of reliable evidence, it is the opinion of the workgroup that there is no association between high keyboarding use and carpal tunnel syndrome.

Strength of recommendation: Consensus.

Implication: In the absence of reliable evidence, practitioners should remain alert to new information as emerging studies may change this recommendation. Practitioners should weigh this recommendation with their clinical expertise and be sensitive to patient preferences.

Therapeutic Ultrasonography

Evidence suggests that therapeutic ultrasonography does not provide long-term improvement of carpal tunnel syndrome.

Strength of recommendation: Limited.

Implication: Practitioners should feel little constraint in following a recommendation labeled as limited, exercise clinical judgment, and be alert for emerging evidence that clarifies or helps to determine the balance between benefits and potential harm. Patient preference should have a substantial influencing role.

Nonsurgical Treatment Versus Placebo/Control

Evidence suggests that the following nonsurgical treatments do not demonstrate superiority over control or placebo: acupressure, insulin injection, heat therapy, magnet therapy, nutritional supplementation, oral diuretic, oral NSAID, oral anticonvulsant, and phonophoresis.

Strength of recommendation: Limited.

Implication: Practitioners should feel little constraint in following a recommendation labeled as limited, exercise clinical judgment, and be alert for emerging evidence that clarifies or helps to determine the balance between benefits and potential harm. Patient preference should have a substantial influencing role.

Nonsurgical Treatment: Long Term

Evidence suggests that the following nonsurgical treatments do not improve long-term patient-reported outcomes for carpal tunnel syndrome: oral corticosteroid, hyaluronic acid injection, hydrodissection, kinesiotaping, laser therapy, peloid therapy, perineural injection therapy, topical treatment, shockwave therapy, exercise, ozone injection, massage therapy, manual therapy, and pulsed radiofrequency.

Strength of recommendation: Limited.

Implication: Practitioners should feel little constraint in following a recommendation labeled as limited, exercise clinical judgment, and be alert for emerging evidence that clarifies or helps to determine the balance between benefits and potential harm. Patient preference should have a substantial influencing role.

Comparison of Nonsurgical Treatments

Evidence suggests no notable difference in patient-reported outcomes between nonsurgical treatment techniques for carpal tunnel syndrome.

Strength of recommendation: Limited.

Implication: Practitioners should feel little constraint in following a recommendation labeled as limited, exercise clinical judgment, and be alert for emerging evidence that clarifies or helps to determine the balance between benefits and potential harm. Patient preference should have a substantial influencing role.

Site of Service

Limited evidence suggests that carpal tunnel system release may be safely conducted in the office setting.

Strength of recommendation: Limited.

Implication: Practitioners should feel little constraint in following a recommendation labeled as limited, exercise clinical judgment, and be alert for emerging evidence that clarifies or helps to determine the balance between benefits and potential harm. Patient preference should have a substantial influencing role.

Surgical Draping

In the absence of reliable evidence, it is the opinion of the workgroup that limited draping is an option for carpal tunnel release.

Strength of recommendation: Consensus.

Implication: In the absence of reliable evidence, practitioners should remain alert to new information as emerging studies may change this recommendation. Practitioners should weigh this recommendation with their clinical expertise and be sensitive to patient preferences.

Anticoagulation

Limited evidence suggests that anticoagulation medication may be safely continued for carpal tunnel release.

Strength of recommendation: Limited.

Implication: Practitioners should feel little constraint in following a recommendation labeled as limited, exercise clinical judgment, and be alert for emerging evidence that clarifies or helps to determine the balance between benefits and potential harm. Patient preference should have a substantial influencing role.

Prophylactic Perioperative Antibiotics

Limited evidence suggests that perioperative prophylactic antibiotics are not indicated for the prevention of surgical site infection following carpal tunnel release.

Strength of recommendation: Limited.

Implication: Practitioners should feel little constraint in following a recommendation labeled as limited, exercise clinical judgment, and be alert for emerging evidence that clarifies or helps to determine the balance between benefits and potential harm. Patient preference should have a substantial influencing role.

Preoperative Testing

In the absence of sufficient evidence specific to carpal tunnel, it is the opinion of the workgroup that routine preoperative testing (eg, laboratory tests, CXR, ECG) is not indicated.

Strength of recommendation: Consensus.

Implication: In the absence of reliable evidence, practitioners should remain alert to new information as emerging studies may change this recommendation. Practitioners should weigh this recommendation with their clinical expertise and be sensitive to patient preferences.

Adjunctive Testing

In the absence of reliable evidence, it is the opinion of the workgroup that, when multiple risk factors for amyloidosis are present, pathological analysis of tenosynovium may be conducted.

Strength of recommendation Consensus.

Implication: In the absence of reliable evidence, practitioners should remain alert to new information as emerging studies may change this recommendation. Practitioners should weigh this recommendation with their clinical expertise and be sensitive to patient preferences.

Postoperative Pain: Tramadol

In the absence of reliable evidence, it is the opinion of the workgroup that tramadol may be considered over other opioids for postoperative pain management.

Strength of recommendation: Consensus.

Implication: In the absence of reliable evidence, practitioners should remain alert to new information as emerging studies may change this recommendation. Practitioners should weigh this recommendation with their clinical expertise and be sensitive to patient preferences.

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