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Therapist perceptions of best practice as ordered by referral source: An exploratory survey

Kristin Valdes OTD, OTL, CHT [a], Mike Szekeres PhD, OT Reg (Ont), CHT [b], Joy MacDermid BSc, BScPT, PhD [c], Dianna Lunsford OTD, OTRL, CHT [a,*]

[a] Occupational Therapy Department, Gannon University, Ruskin, FL, USA
[b] Hand Therapy Canada, London, Ontario, Canada
[c] Western University, London, Ontario, Canada

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ABSTRACT

Introduction: Productive outcomes for the hand therapy patient involve many components. Understanding whether therapists agree with the recommendations they receive, or find these informative, is a first step into understanding how shared decision-making on a treatment plan can be optimized.
Purpose of the Study: The purposes of this study include (1) the extent which therapists see variable presentations of primary surgical/management in some indicator exemplars where practices vary from accepted/evidence-based practice; (2) hand therapists' level of agreement with the interventions prescribed on referrals, (3) describe the undocumented complications observed by hand therapists, and (4) report the therapists' perceptions as to the reasons for these complications
Methods: A survey was designed and pilot tested. Multiple-choice questions and free text allowed further explanation. The survey was administered through an electronic mailing to all American Society of Hand Therapy members with available e-mail addresses. Raw survey data were extracted and processed. Descriptive statistics were used to analyze therapists' demographic information. Frequencies of therapists' responses were calculated.
Results: Ninety percent of all who responded have been in practice 10 years or more. The mean of the "often and always" ordered interventions was 20%. The mean of therapist perceptions as to whether these ordered interventions are best practice was 14%. Sixty percent reported that they had found an undocumented condition, and 60% reported to have found a postoperative complication. Perceived reasons for complications included the lack of communication and therapy intervention.
Discussion: Hand therapists can play an important role in improving patient outcomes. Therapists can provide the health care team information regarding best practice. Additionally, the hand therapist may be who first identifies a postsurgical complication or an undocumented issue. Communication between the hand therapist and referral source is vital in optimizing patient outcomes.
Conclusion: Hand therapists can play an important role in improving overall outcomes for patients. The inter-professional working relationship between the referral source, hand therapist, and the patient is a complex phenomenon and communication between the hand therapist and referral source is vital.

Introduction

Trauma to the hands is reported to be one of the most frequent nonlethal injuries throughout the United States.[1] Hand surgeons, general surgeons, and nonspecialized physicians all refer patients to hand therapy services. Hand surgeons and specialists have obtained additional training in the treatment of hand problems, whereas general surgeons and nonspecialized physicians may not have received supplementary education and knowledge regarding advanced hand treatments.[1]

Communication between the referral source and therapist is key to productive outcomes for the patient. The physician who is sending the referral to the therapist many times prescribes or suggests a protocol for rehabilitation, although therapists have professional responsibility to assess the patient, communicate their

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* Corresponding author. Occupational Therapy Department, Gannon University, 6211 Tupelo Trail, Ruskin, FL 34202, USA. Tel.: +1 (616) 402-8834.
E-mail address: Lunsford001@gannon.edu (D. Lunsford).

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opinions and observations, and provide recommendations based on evidence-based practice, to better the outcome of the patient.[2] Evidence-based care generates recommendations that are soundly grounded in communication with surgeons, as well as knowledge of the literature, resulting in improvement of health care services.[3] The final treatment plan should reflect a shared decision-making process where the patient, referral source, and therapist have important inputs. Understanding whether therapists agree with the recommendations they receive, or find these informative, is a first step into understanding how shared decision-making on a treatment plan can be optimized. Furthermore, therapists need to accommodate to the initial surgical/medical treatment plan, even when these are not current, common, or evidence based. It could be helpful to understand the extent that therapist receive these atypical referrals.

Despite the best efforts of hand care professionals in communication and interventions, complications occur during the treatment and recovery process. Complications after hand surgery are frequently reported in the literature. In 1 study, skeletal fixation for severely injured digits yielded bony complications in 20% of patients including nonunion, migration of K-wires, and infection compared to no noted complications with surgical intervention using plate and screw fixations.[4] Complications of surgical treatment of rheumatoid arthritis are common in ulnar translation of the carpus, radioulnar impingement, total wrist arthrodesis, and arthroplasty.[5,6] One study that analyzed 10,646 patients and their postoperative complications within 30 days found that the most common complication was a surgical-site infection.[7] Outpatient surgery that involved local anesthesia reported having a lower risk of complications vs a longer operative surgery performed in a hospital.[7] Swing traction and no-traction surgeries for intraarticular proximal interphalangeal fractures have demonstrated complications including swan-neck deformities, malunion, infection, or adhesions.[8] Open palm technique for operating on Dupuytren's disease is effective; however, it also yields complications including hematoma, skin necrosis, and infection.[9] Clearly, multiple issues can arise after surgical intervention. Since therapists often see patients more frequently than scheduled postsurgical follow-ups, they are well positioned to recognize complications that may occur and can be instrumental in directing appropriate care. Description of therapist's experiences in detection of complications can provide insights into their role in the overall management of the patient.

The purposes of this study were to describe the following:

1. The extent to which therapists see variable presentations of primary surgical/management in some indicator exemplars where practices may vary from accepted/evidence-based practice
2. Hand therapists' level of agreement with the interventions prescribed on physician referrals
3. Describe the undocumented complications observed by hand therapists
4. Report the therapists' perceptions as the reasons for these complications

Methods

Development of the survey

Three authors developed the 7-question survey to determine therapist level of agreement with physician-ordered interventions, report undocumented complications seen by the hand therapist, and identify therapist perceptions of the reasons for complications seen after hand surgery. The survey was created with the option to "opt out" of answering any question. Two of the survey designers have previous experience with conducting online surveys for research. The Checklist for Reporting Results of Internet E-Surveys was used in reporting the results of this survey.[10] The 7-question survey used a multiple-choice format along with additional questions that allowed for free-text comments and further explanations in order to gather additional information on best practice. The indicator exemplars where practices might vary from accepted/evidence-based practices that are presented were derived from a consensus panel of expert certified hand therapists based on best evidence available in the literature. The survey was electronically mailed to the American Society of Hand Therapy (ASHT) Research Division's members for additional review. Based on comments and suggestions from the committee, adjustments were made to the survey questions in order to eliminate bias. A pilot study was then completed by a group of PhD students in Canada. Recommendations were made to improve the clarity of a few questions and further adjustments were made. Institutional review board approval was not necessary due to the nature of the survey questions and anonymous responses. Please refer to Appendix A for a copy of the survey. The web-based survey was delivered through Survey Monkey (Survey Monkey; Palo Alto, CA): http://www.surveymonkey.com.

Survey administration

The survey was administered through an electronic mailing to all members of the ASHT with e-mail addresses on file. In an effort to maximize the response rate, an invitation to participate in the survey was electronically distributed on 2 separate occasions. The 2 mailings were sent out in November and December 2015. A link to the survey site, Survey Monkey, was included in the e-mails sent.

Data analysis

Raw survey data were extracted from the electronic Survey Monkey site at the end of the survey period and processed using SPSS statistical package (version 20.0, IBM, NY). Descriptive statistics were analyzed for therapists' demographic information. Frequencies of therapists' responses were calculated to summarize categorical data and multiple-choice answer options. In some questions, multiple answers were allowed for the multiple-choice questions; therefore, some of the summarized frequencies exceeded 100%. Open-ended responses were themed for presentation.

Results

A total of 744 ASHT members responded to the survey. A total of 2 mailings were sent to a total of 3000 therapists. Data were collected regarding the number of therapists opening the e-mails and the maximum number of therapists opening the e-mail was 1689 (56%). Hence, the response rate was determined to be 744/1689 (44%). Participant responses to the survey questions are described in the following paragraphs.

Question 1: What is the number of years you have practiced? A total of 477 respondents (64%) answered this question and 267 (36%) skipped this question. See Table 1.

Question 2: Please indicate the frequency that you see the following surgeon-ordered/performed interventions in your practice? With this question, 608 respondents (82%) answered and 136 respondents (18%) skipped this question. Results can be viewed in Table 2.

Question 3: If/when you do see the following surgeon-ordered/performed interventions in your practice; please indicate how often you agree that they are best practice. Five hundred twenty

Table 1
Years in practice ($n = 477$)

Answer choices	Responses
0-5	22 (5%)
5-10	22 (5%)
10-20	128 (27%)
+20	305 (64%)
Total	477 responses

respondents (70%) answered and 224 (30%) skipped this question. The results can be viewed in Table 3.

Question 4: Please list any undocumented upper extremity conditions that you observed while treating a patient for a different referral diagnosis. Four hundred forty-five respondents (60%) answered this question, and 299 (40%) skipped. Many of the respondents provided multiple answers resulting in 892 responses for undiagnosed upper extremity conditions. These answers were grouped into 17 classifications as listed in Table 4.

Question 5: Please list any postsurgical complication that you discovered when treating a patient (for example, infection at hardware site, hardware failure, and so on).

A total of 444 respondents (60%) answered this question, and 300 (40%) skipped this question. Some respondents provided multiple answers totaling 477 responses. These are listed in Table 5.

Question 6: Please describe any complications that arose during hand therapy that you believe were related to a surgical issue or a lack of communication of postsurgical restrictions between you and the referral source. Describe the issues and factors contributing to it. Three hundred twenty respondents (43%) answered this question, and 424 (57%) skipped this question. There were a total of 364 responses since some of the respondents provided more than 1 answer. Results can be viewed in Table 6.

Qualitative information included both negative and positive responses. Negative responses were centered on complications found and lack of communication with referral sources. Positive responses highlighted a shared team approach with open communication and good working relationship.

Some negative participant responses in free-text areas included:

> "Removal of dressing from a graft that should not have been removed although indicated by surgeon"

> "These types of issues typically occur with doctors who are unaware of the benefits of pts receiving early therapy – ie splinting a pt in a safe position, EAM protocols; different healing timelines in different ages; doctors stuck in a one-protocol treatment."

> "Patient was rejecting hardware from ORIF proximal phalanx fracture. Reported to Dr that his surgical site closed and appeared healed then reopen and was draining. Infection was apparent. Patient put on antibiotics. Next visit wound looked worse. Report to Doctor that infection was worst. Dr ignored report and said patient must not be taking antibiotic. Wound open up again reported to Doctor that patients wound was completely open and was appearing as he was rejecting his hardware. No response. 1 week later on normal scheduled Dr visit X-ray reveals that plate was broken, bone infection. Patient taken to operating room"

Some positive participant responses in free-text areas included:

> "We are very fortunate to have close communication with referring hand surgeons, so not an issue at current practice"

> "None. We have an open door policy with our surgeons and see them everyday and can discuss any issue"

> "I can't really think of any. We have a very close relationship with our hand surgeons; they literally are a doorway away. We have full access to their secretaries as well. We have almost daily contact with some of them."

Question 7: Please describe a complication that arose during hand therapy that you believe is a result of a therapeutic intervention. Describe the issues and the factors contributing to it. Three hundred three respondents (41%) answered, and 441(59%) skipped this question. Some respondents provided multiple answers providing a total of 315 responses. Please see results in Table 7.

Discussion

This study explored issues that complicate the treatment planning process when therapists receive a referral including variations in primary surgical management, referral timing and content, and the nature of the type and source of complications that arise during the surgical or rehabilitation process. These issues relate to the communication that occurs during the referral and shared care processes between hand therapists and surgeons. A survey performed in Canada regarding team-based primary care found improved patient perceptions regarding the quality of care, confidence in the system, overall coordination of care, and patient centeredness.[11]

We used some exemplars where we felt that practice standards would suggest a course of action was not evidence based, to reflect the extent that therapists might be seeing variable practice. We recognize that a variety of reasons might justify an atypical clinical

Table 2
Frequency surgeon orders or performs these interventions ($n = 608$)

Procedures performed	Never	Seldom	Neither seldom nor often	Often	Always	Total
External fixation following distal radius fracture	165 (27%)	307 (51%)	38 (6%)	76 (13%)	19 (3%)	605
Flexor tendon immobilization after repair longer than 5 days	116 (19%)	262 (43%)	100 (17%)	115 (19%)	13 (2%)	606
Extensor tendon immobilization after repair longer than 5 days	76 (13%)	203 (34%)	122 (20%)	177 (29%)	25 (4%)	603
Finger fracture immobilization after open reduction internal fixation longer than 3 weeks	111 (18%)	256 (43%)	105 (17%)	116 (19%)	14 (2%)	602
Immobilization of all uninvolved digits in orthosis	166 (27%)	265 (44%)	105 (17%)	63 (10%)	7 (1%)	606
Immobilization of metacarpal phalangeal joints in extension when 50-90° of flexion is a safe position	197 (33%)	230 (38%)	105 (17%)	60 (10%)	10 (2%)	602
Ultrasound for scar remodeling	83 (14%)	111 (18%)	165 (27%)	212 (35%)	34 (6%)	605
Multiple physical agent modalities for chronic pain	64 (11%)	152 (25%)	167 (28%)	184 (31%)	35 (6%)	602
"Aggressive" therapy	65 (11%)	198 (34%)	182 (31%)	129 (22%)	15 (3%)	589
Other interventions that are potentially not supported by evidence	144 (26%)	207 (38%)	136 (25%)	44 (8%)	15 (3%)	546
Continuing to see patients in therapy after objectives have been met or patient has plateaued	174 (29%)	258 (43%)	126 (21%)	38 (6%)	5 (>1%)	601
Inappropriately encouraging and discouraging functional use of the hand	299 (50%)	197 (33%)	76 (13%)	25 (4%)	3 (>1%)	600
Advising patients to take more than 2 weeks off after carpal tunnel release	171 (29%)	198 (33%)	138 (23%)	82 (14%)	11 (2%)	600

Table 3
Therapist level of agreement for best practices for surgeon-ordered interventions ($n = 520$)

Procedures performed by physician or physician prescribed intervention	Never	Seldom	Neither seldom nor often	Often	Always	Total
External fixation following distal radius fracture	138 (27%)	146 (29%)	113 (22%)	84 (17%)	26 (5%)	507
Flexor tendon mobilization after repair longer than 5 days	177 (35%)	208 (41%)	79 (15%)	39 (8%)	9 (2%)	512
Extensor tendon immobilization after repair longer than 5 days	137 (27%)	195 (38%)	109 (21%)	59 (12%)	12 (2%)	512
Finger fracture immobilization after open reduction internal fixation longer than 3 weeks	215 (43%)	172 (34%)	76 (15%)	35 (7%)	8 (2%)	506
Immobilization of all uninvolved digits in orthosis	283 (56%)	156 (31%)	47 (9%)	17 (3%)	6 (1%)	509
Immobilization of metacarpal phalangeal joints in extension when 50°-90° of flexion is a safe position	321 (63%)	122 (24%)	39 (8%)	18 (4%)	7 (1%)	507
Ultrasound for scar remodeling	62 (12%)	99 (19%)	165 (32%)	147 (29%)	35 (7%)	508
Multiple physical agent modalities for chronic pain	97 (19%)	134 (27%)	143 (28%)	105 (21%)	23 (5%)	502
“Aggressive” therapy	114 (23%)	164 (33%)	142 (29%)	58 (12%)	18 (4%)	496
Other interventions that are potentially not supported by evidence	160 (35%)	152 (34%)	110 (24%)	26 (6%)	5 (1%)	453
Continuing to see patients in therapy after objectives have been met or patient has plateaued	318 (63%)	130 (26%)	44 (9%)	11 (2%)	5 (>1%)	508
Inappropriately encouraging/discouraging functional use of the hand	380 (75%)	86 (17%)	31 (6%)	5 (>1%)	4 (>1%)	506
Advising patients to take more than 2 weeks off after carpal tunnel release	191 (38%)	169 (34%)	101 (20%)	33 (7%)	6 (1%)	500

decision, and this also assessed the extent to which the hand therapist agreed with the referral orders, as this reflects a potential source of uncertainty in the management process. We recognize the exemplars have a degree of controversy as to whether or not they may be considered best practice since there is no high level of evidence on most. In some circumstances, the interventions listed may be best practice, and clinician decision-making is part of the evidence-based practice dogma. Ultrasound as ordered for scar remodeling with a frequency of 35% by referral sources and therapists reported that they often agree (29%) that this is the best practice despite lack of evidence in the literature to support ultrasound for scar remodeling.[12] Referral sources were reported to often (31%) order multiple physical agent modalities for chronic pain in comparison to therapists that believed it was often (21%) best practice. Physician orders were reported to often (29%) request extensor tendon immobilization after repair longer than 5 days compared to therapist respondents who reported that it was often (12%) best practice. A possible reason for the discordance might be that hand therapists keep up to date with the upper extremity literature, whereas nonspecialized referral sources may not. This emphasizes the importance of the therapist as a knowledge broker, to share with the referral source what is considered the most recent best practice in order to provide the highest level of care to the patient. However, there was not a huge disparity between frequency of orders received and therapist beliefs regarding best practice.

Sixty percent of the respondents to this survey reported that they had found an undocumented condition when treating a patient. The top 4 conditions reported were ligament injury, nerve injury, trigger finger, and carpal tunnel. These conditions could not have been diagnosed by the referral source with an x-ray. However, these conditions are often identified by a hand therapist while providing care that necessitates the patient move and use their hand and upper extremity. Identifying these undocumented conditions would require clinical assessment on the part of the skilled clinician using a combination of provocative tests and clinical reasoning. Sixty percent of the therapists reported that they found a postoperative complication. The top 3 reported complications found by hand therapists were infection, hardware issues, and complex regional pain syndrome. These findings indicate the important role of the hand therapist as a monitor. It is often the hand therapist who sees the patient frequently, or for longer sessions, and thus, is in a good position to identify complications or other barriers that could be detrimental to the patient's recovery process. This survey suggests that hand therapists may play a vital role in the management of postoperative hand conditions by identifying and communicating issues to the referral source.

Complications that limit hand function still occur despite advances in both surgical techniques and therapy protocols.[13] An Australian survey found barriers to the provision of specialized hand care in rural and remote areas including the lack of expert knowledge in hand injuries.[14] The researchers recommended a shared care approach between metropolitan/regional and rural/remote therapists to assist with the limited knowledge, and we agree that this approach may reduce complications.[14] In this survey, 31% of the therapist respondents (from Tables 6 and 7) reported at least 1 complication that arose during hand therapy, that they

Table 4
Undiagnosed upper extremity conditions ($n = 892$)

Undiagnosed upper extremity condition	Total amount	Percentage
Other nerve injury	143	16
Ligament tear/ligament laxity	103	12
Trigger finger	74	8
Carpal tunnel syndrome	71	8
Shoulder injury	60	7
Tendon rupture	59	7
DeQuervain's tenosynovitis	55	6
Complex regional pain syndrome	54	6
Thoracic outlet syndrome	46	5
Fracture	43	5
Neck/cervical issue	35	4
Tendonitis	30	3
Osteoarthritis	30	3
Central nervous system	24	3
Dupuytren's contracture	22	3
Instability	22	3
Lateral/medial epicondylitis	21	2

Table 5
Postsurgical complications ($n = 477$)

Complication	Total	Percentage
Infection	192	40
Hardware issues	64	13
Complex regional pain syndrome	61	13
Tendon rupture	46	10
Scar adhesion/contracture	22	5
Instability/nonunion fracture	18	4
Nerve injury	18	4
Excessive edema/inflammation	14	3
None	17	4
Stiffness/contracture	9	2
Other	7	1
Hypersensitivity	6	1
Heterotopic ossification	2	>1
Emboli	2	>1

Table 6
Complications due to a surgical issue or lack of communication ($n = 364$)

Complication	Total	Percentage	Quotes
Nonspecific complication due to poor communication	90	25	MD ordered a post-surgical tendon repair splint that is never indicated Called MD twice to clarify type of splint, he never called back, then called our office upset about splint because it was the wrong splint… All b/c of lack of communication with MD
No complications noted	76	21	
Tendon rupture	38	10	Tendon rupture with a new physician that used a 2 strand repair. (plastic surgeon)
Stiffness due to improper immobilization	33	9	T. had a boxers fx and was casted in metacarpal phalangeal full extension for 6 weeks. When Pt was referred he was so stiff that he never gained functional metacarpal phalangeal flexion.
Nonspecific complication due to late referral to therapy	27	7	Postsurgical stiffness from edema/delay in getting into therapy. Patient often referred for therapy at their post-op follow-up with MD. This is typically a week but can sometimes be longer.
Nonspecific complication due to lack of knowledge or protocols	17	5	Dislocation of unstable elbow following elbow fracture/dislocation with incorrect size radial head prosthesis and sent to therapy for gentle range of motion when there was surgical instability.
Tendon adhesion	17	5	I've have a couple tenolysis patients who did not get clear instructions to schedule therapy after surgery and make therapy/movement a priority. I've had some pts come in 3 weeks post op! Also, the a few doctors ordered therapy after tenolysis but didn't talk to worker's comp case managers to get therapy set up quickly after surgery.
Contractures	15	4	One of the saddest cases was a woman with a distal radius fracture. She was seeing physical therapy for her back. They noted how stiff her fingers were. We requested an order from her surgeon to begin intervention for her digits while she was in the cast and he declined. By the time she received therapy orders, her fingers were "frozen" in extension. Despite ongoing intervention, she never recovered digit mobility. This could have so easily been prevented. Most patients will not do proper range of motion of digits while waiting for wrists to heal unless shown how to do so. Sometimes all they need is a few lessons and they are independent.
Infection	11	3	undiagnosed infection process- it progressed requiring IV antibiotics and developed excessive adhesions post a flexor tendon repair. The patient went on to require a tenolysis
Improper splint	10	3	Wrong orthotic ordered delayed treatment patient had to wait until we could clarify with surgeon. More delay than actual problem. Was able to clarify for correct orthotic it was a clerical error.
Complex regional pain syndrome can not cause condition	10	3	Complex regional pain syndrome and improper casting of unnecessary joints.
Edema	9	3	Joint swelling and increased pain following passive stretch of MP joints and following application of dynamic splints.
Nerve-related issue	6	2	Lacerated median nerve after carpal tunnel syndrome, lacerated digital nerves after Dupuytrens, lacerated radial sensory nerve after 1st extensor compartment release…on and on…..
Unstable fracture	4	1	Non union humerus fracture. Needed better fixation.
Thoracic outlet syndrome	1	>1	Thoracic outlet syndrome treating

believed was attributed to the lack of communication between the surgeon and the therapist. The highest reported complications included an unspecified complication, tendon rupture, and joint stiffness. Themes of the responses could be characterized as follows: patient not understanding postsurgical instructions provided by MD, that MDs not comfortable with early referrals to hand therapy, insurance company interference with original MD order, and incorrect immobilization applied postsurgically before the patient arrived for the therapy. Some therapists reported excellent communication with referral sources with no complications that they believed were a result of poor communication.

Table 7
Complication as the result of hand therapy intervention ($n = 315$)

Complication	Total amount	Percentage
None	71	23
Nonspecific complications related to starting mobilization too early	49	16
Rupture tendon	44	14
Swelling/pain	37	12
Complications related to being not aggressive enough	35	11
Irritation from splinting	20	6
Complication from lack of communication	19	6
Burn from modality misuse	12	4
Refracture	9	3
Tendonitis	7	2
Infection	6	2
Improper wound closure	2	>1

Forty percent of the respondents reported at least 1 complication that was attributed to something that occurred as a result of hand therapy intervention. The highest reported complications were tendon rupture, swelling and pain, complications related to starting mobilization too early, and complications related to not being aggressive enough. It is unclear if any communication occurred with the referral source during these interventions that may have directed therapy differently and yielded a more positive outcome. Each of these complications seems related to appropriate dosage—either frequency of exercise or stress to tissues. Further research is needed to optimize therapy dosages in order to minimize therapy-related complications.

Strengths/limitations

This study provides data on a relatively large and defined group of clinicians. However, the results have some substantial limitations that should be considered. The responses are opinions not specific diagnoses, and failure to document an issue does not

mean that the referring physician did not consider it. The response rate was 44% of the membership, although we cannot ascertain how many received the invitation and this may be an underestimate. Nevertheless, this rate is not ideal, but we considered it acceptable given the typical responses on similar professional surveys. This leaves potential for response bias and it cannot be assumed that the findings in this study reflect the opinion of the hand therapists that chose not to participate. The finding of this study may not be generalizable to those that are not members of ASHT.

Finally, some of the details and timeframes that were used by the respondents to answer the questions are unknown. For example, years in practice for referral sources was not gathered in this survey. Therefore, the data represent incidents, not rates. Also, perhaps the responses would have been different if the answers were limited to a certain period of time such as the duration of practice over which the information was provided. This would have enabled an analysis of incidence of each complication. Since this was not analyzed, and in general, the number of years of practice of the therapists was high, our data may artificially inflate the presence of complications or missed diagnoses. The chance of a therapist seeing a complication or missed diagnosis obviously increases over years of practice with experience.

It is also unknown if therapists were following ordered interventions from a referral source and whether that referral source was a specialist or not when these complications arose. We did not collect data regarding the specialization or lack thereof of the referral source.

Conclusion

There is a further need to explore the complex phenomenon of the interprofessional working relationship between the referral source, hand therapist, and the patient. This may help determine the optimal communication approach to promote improved patient outcomes. Hand therapists can play an important role in improving overall outcomes for patients. It may be the hand therapist who first identifies a postsurgical complication on or an undiagnosed issue. Additionally, the hand therapist who is up to date on the literature, outlining best practices, may be able to educate and inform the team regarding this information. In any event, communication between the hand therapist and referral source, whether specialist or generalist, is vital in optimizing patient care in hand therapy.

Supplementary data

Supplementary data related to this article can be found at https://doi.org/10.1016/j.jht.2017.12.001.

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1. The purpose of the article is to
   a. report hand therapists' perception as to the reason for undocumented complications
   b. describe undocumented complications seen by hand therapists
   c. show to what extent hand therapists agree with the interventions suggested to them by their referring sources (i.e. typically physicians)
   d. all of the above

2. Data were obtained through
   a. patient interviews
   b. physician interviews
   c. survey analysis
   d. therapist interviews

3. In comparing the therapists' impression as to best practices to the interventions prescribed by the referral source, approximately _____ % of the time therapists felt that the suggested intervention did, indeed, meet the standard of best practices
   a. 15
   b. 25
   c. 50
   d. 75

4. Undocumented complications were reported at approximately _____ %
   a. 50
   b. 60
   c. 70
   d. 90

5. This article bolsters the long-held maxim that communication between the treating therapist and their referral source (e.g. a hand surgeon) is vital to optimizing patient outcomes
   a. false
   b. true

When submitting to the HTCC for re-certification, please batch your JHT RFC certificates in groups of 3 or more to get full credit.