

CASE REPORT

The implementation of post breast cancer surgery physical therapy instructions for patients—A case study of Israeli medical centers

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Abstract

That patients undergoing breast cancer (BC) surgery need instruction post-surgery has been well described in the literature. Therefore, new off and online patient instructions have been developed and made available in Israel. This study aimed to evaluate the degree to which these instructions reach patients in Israeli medical centers and reasons for use or non-use. A case study. The study population were managers of physical therapy services in Israeli medical centers. Telephone interviews, using a semi structured questionnaire, were recorded and transcribed. The research team summarized and discussed the issues raised. Managers of physical therapy service or representative from 18 public medical centers were interviewed. All medical centers employ a full or part time physical therapist in their surgical wards and all except one provide some pre-discharge instructions to all or to selected women after BC surgery. Nine interviewees think that the new instruction is suitable as is. Disagreeing opinions were that the content is too long and not suitable for all patients. In medical centers with strong interdisciplinary cooperation there is greater use of the new instruction. Online distribution of instruction to the managers of the PT services in medical centers helped encourage their use. Instruction promotion can be increased through interdisciplinary cooperation, educational seminars, staff meetings and electronic media.

Keywords

Breast cancer; Information-provision; Instruction; Physiotherapy; Side-effects

1. Introduction

Women after breast cancer (BC) surgery commonly suffer from short and long-term side effects such as shoulder movement limitation, pain, seroma, axillary web syndrome, lymphedema and problems related to surgical scars. Inadequate information may result in limited use of the affected arm and avoidance of physical effort, medical needle procedures and blood pressure measurement on the affected side, due to fear of lymphedema development [1, 2]. Need for postoperative information provision has been well described in the literature [3–5]. Additionally, evidence has shown that post BC surgery activity and lifestyle guidance, delivered by physical therapists, was more effective than guidance provided by other staff members [6].

A survey we conducted in Israel revealed that available instruction at most medical centers were not updated to recent scientific evidence, no written instruction in some and others used variations of non-standardized instruction. In most medical centers instruction was provided one day after surgery and not routinely to all patients (unpublished).

The need to provide written instruction was further emphasized during the coronavirus epidemic with the shortening of

hospitalization after BC surgery (in some cases 24 hours or less) and social distancing. Providing electronic instruction and information can effectively substitute conventional frontal and printed instruction.

Therefore, we recently developed new updated, electronically available instruction for women after BC surgery [1]. It is based on a literature review, a survey performed among physical therapists certified in lymphedema treatment (PTCLT) in Israel [7], and existing patient information provided in Israeli medical centers. The instruction offers “self-management” material addresses patients in first-person and the text is appropriate for the general population. It includes advice for healthy behavior and risk reduction recommendations for side effects after BC surgery. Exercises, an important part of the instruction, are presented according to recovery stage and accompanied by colored pictures.

There is separate instruction for patients at high risk ((post axillary lymph node dissection, (ALND)) and at low risk ((post sentinel lymph node dissection (SLND)) for arm lymphedema as a BC surgery side effect. Israel is a multilingual country so the instruction was translated into Arabic, Russian and English. It was uploaded to the Israeli Physical Therapy Society (IPTS) website and sent online to all managers of physical therapy

(PT) departments in Israeli medical centers, to the heads of PT services in the four health management organizations (HMOs), and to all Israeli PTCLTs [8]. In addition, a videoed instruction for younger patients was produced by the Stop-Cancer Association and uploaded to YouTube [9].

The present case study goal was to evaluate the degree of implementation of the new instruction in Israeli medical centers, two years after its publication, as well as reasons for use or non-use. This information may be applied to improve post BC surgery information dispersion to professionals and to make text and editorial corrections. This may increase the availability of the instruction to patient populations undergoing post BC surgery rehabilitation.

2. Materials and Methods

This case study is based on information about provision of new instructional information for patients after BC surgery. The study population included the managers of Israeli PT services or a representative in medical centers where BC surgeries are routinely performed (23 out of 27 general medical centers). Recruitment was *via* an email explaining the research objectives.

A semi structured questionnaire with a list of topics, compiled by the principal investigator, was validated by the other team members who are all certified and experienced in lymphedema treatment. Answers to some of the questions were dichotomous (yes/no) and the rest were open. Interview topics included personal details (age, seniority, position) and questions regarding implementation of the new instruction. The open questions covered topics related to PT services for patients after BC surgery, type of instruction provided to these patients and reasons for choice, feedback related to the suitability of the new instruction and interdisciplinary cooperation (**Supplementary material**). Data, collected by two of the team members *via* telephone interview, was recorded, transcribed and sent to interviewees for approval. Names of interviewees and medical centers were replaced by codes during data processing. The principle investigator formulated the first draft of the results and delivered it to other team members for feedback. Then, a meeting was held to discuss the transcript and extract and refine the main themes. Following this, the principal investigator summarized the conclusions and returned to the research team for approval. Interviewees' citations were collected to support the conclusions (**Supplementary material**).

3. Results

Managers of PT service or representatives from 18 out of 23 (78%) public medical centers participated in the study, and partial information was received by e-mail from three additional PT service managers. The medical centers are located in all parts of the country (center, Jerusalem, north and south), 11 are defined as large (over 600 beds), 5 medium (600–350 beds) and 11 small (under 350 beds). Medical centers in which BC surgeries were not performed were excluded from the study. These were small hospitals, three located either in the periphery (north or south) and one at the center of the

country. Two managers from large and one from a small medical center, located in the center of the country, declined participation in the study.

The majority (17/18) of the interviewees were women with an average physical therapist seniority of 19 ± 10 years. All medical centers have a full or part time physical therapist covering the general surgical wards. In 12 centers all patients after BC surgery receive instruction before discharge and selected patients in the rest with one exception (Table 1).

Managers of 19 out of 23 medical centers received the new instruction and ten provide it to their patients as is. Of the ten, two are large, five are medium size and the rest are small. Of those providing a combination of new and old versions, two are large and two are small. The rest use either their existing instruction or none. Medical center geographic location was not a factor affecting choice of instruction (Table 2). Managers who did not receive the new instruction reported special circumstances such as recent employment in the managerial post or very few BC surgeries being performed. These managers responded to our email but did not participate in a full interview.

Seven medical centers were using translations of the instructions and in five the interviewees were not aware of them. Some referred patients to the relevant websites where the instruction is available. At 12 medical centers collaboration with interdisciplinary staff was described as very good (Table 1).

Issues discussed during the interviews were: 3.1. Strengths and weaknesses; 3.2. Target patient population; 3.3. Instruction format and timing of patient provision; 3.4. Collaboration with interdisciplinary staff; and 3.5. Suggestions for improvement. Examples of citations on each subject are presented in a supplement.

3.1. Strengths of the new instruction provided by the participants: they are clear, evidence based, include exercise detail and are supported by the IPTS. In addition, they address the patient personally and enable empowerment through self-treatment. Furthermore, there is separate instruction for ALND and SLND in recognition of different risk for arm lymphedema carried by each. An additional strength was translation into other commonly used languages in Israel.

Weaknesses of the instruction: lengthy, include many different exercises, provide excessively conservative instruction for the first three weeks, and require printing many pages. In addition, needs of patients after breast reconstruction surgery and others are not included.

Reasons against use, unrelated to the content, was convenience with use of old and familiar instruction or other recently drafted instruction at the medical center. There was some non-consensus with doctors and nurses regarding suitability of the new instruction. Logistical problems exist due to medical centers scheduling BC surgeries on Thursdays with discharge on Fridays when regular PT services are not available (weekends in Israel are Friday and Saturday).

3.2. At 12 medical centers every patient after BC surgery receives instruction. In a few, provision is only to patients after lymph node removal. Other reported options were instruction provision only with a doctor's or nursing staff request, and after large and complex surgery. In one medical center patients are not provided any instruction before discharge. The interviewee

TABLE 1. Medical centers, participants, and use of the new instructions for patients post-breast cancer surgery.

Characteristics	Categories	Results
General medical centers in Israel		
	Total	27
	Public	26
	Private	1
Medical center size		
	Large (>600 beds)	11
	Medium (350–600 beds)	5
	Small (<350 beds)	11
Geographic area		
	Center (6 large, 1 medium, 5 small)	12
	North (2 large, 4 medium, 3 small)	9
	Jerusalem (2 large)	2
	South (1 large, 3 small)	4
Perform breast cancer (BC) surgeries		
	Routine basis	23
	1–2 surgeries a month	2
	None or began recently	2
Agreed to interview		
	Completed interview	18
	Responded by email only	3
	Declined	2
Participant characteristics		
	Age	Mean \pm SD
		47.6 \pm 7.8
	Seniority	Mean \pm SD
		19.0 \pm 10.6
	Gender	F/M
		44/638
Medical center position		
	Head of physical therapy services	15
	Physical therapist working in general surgery ward	4
	Other	2
Physical therapist in BC or general surgery ward		
	Yes	16
	Part time	5
Provides instruction after BC surgery to:		
	All patients	12
	Most patients	4
	Only with physician referral	3
	Only after complex surgeries	1
	None	1
Other staff members provide instruction		
	Yes	14
	No	4
	Don't know	3
Instruction providers		
	Physical therapist	16
	Nurse	14
	Social worker	5

TABLE 1. Continued.

Characteristics	Categories	Results
Received the updated instruction		
	Yes	19
	No/don't know	2
Instruction provided to patients		
	Updated	10
	Regular instruction provided	5
	Mixed updated and regular versions	3
	None	3
Suitability of the updated instruction		
	Yes, as is	9
	Yes, but too long	3
	Yes, but with different logo	3
	Yes, but not to all patients	2
	Don't know	4
Using translated versions of the updated instruction		
	Sometime	7
	There was no need	6
	No/not aware of their existence	5
Collaboration with interdisciplinary medical team		
	Yes, very much	12
	Partial, slightly	3
	No	3
Are patients directed to a website containing updated information?		
	Yes	3
	No	15

noted that the surgeon believed that there are no side effects after BC surgery.

3.3. Ten interviewees reported using the new instruction and being satisfied with them. In these medical centers, the instruction information has been made electronically available to all staff physical therapists *via* the center internet. One center created a combined version of existing and new instruction and another created an abbreviated version and a link to the full version on the IPTS website and to the Stop-Cancer You Tube website [8, 9]. In most medical centers using the new instruction, physical therapists print the relevant version and provide it to patients before discharge. Some interviewees claimed that patients have difficulty absorbing new information early after surgery and think that pre-surgery instruction would be preferable. In one medical center a printed color version is provided to all patients while in another it is provided only in special cases—an example was for a patient with poor concentration and memory. In 14 medical centers, nurses provide instruction (new or old) if physical therapists are not available. In one center, patients attending a rehabilitation program post discharge, are also referred to the IPTS website [8].

3.4. Ten managers reported having good or very good interdisciplinary staff collaboration. In eight medical centers the new instruction is provided to patients as is and in two, with some changes. In these medical centers, physical therapists had provided interdisciplinary staff lectures on the new instruction. Two PT departments made an information brochure for the entire department staff. In most centers, patient instruction is provided mainly by physical therapists, sometimes a BC coordination nurse, social worker or surgeon. One interviewee informed that she and a nurse deliver instruction to patients previously not seen, at a follow-up appointment in outpatient clinics, usually a week post discharge.

3.5. Interviewee suggestions: content changes were to add information about relevant adjunctive oncology treatments and to expand the explanation regarding ALND and SLND. Regarding editing, a printed booklet with information was suggested, moving the current logo to the last page, and translating the instruction into French. Alternative or additional instruction timing suggestion included during appointments pre-surgery and post discharge. One interviewee suggested recruiting BC survivors volunteering in the BC support community to offer booklets containing updated post-surgical instruction *via*

TABLE 2. Participating medical center characteristics.

Medical center	Geographic location	Size*	Participation in the study	Instruction provision	Interdisciplinary collaboration
1	Center	Large	Yes	No	Partly
2	Center	Small	Yes	New instruction	Very much
3	Center	Large	No		
4	Center	Medium		New instruction	Very much
5	Center	Large	No		
6	Center	Large	Yes	New instruction	Very much
7	Center	Large	Yes	Old local instruction	Good
8	Center	Large	Yes	Old local instruction after complicated operation	Only for complicated patients
9	Center	Small	Yes	New instruction	Very much
10	Center	Small	No provided some information by mail	Old local instruction	
11	North	Small	Yes	New instruction	Good
12	North	Small	Yes	Old local instruction	Partly
13	North	Large	yes	Old local instruction to selected patients	Slight
14	North	Small	Yes	New instruction	Slight
15	North	Medium	Yes	New instruction	Very much
16	North	Medium	Yes	New instruction, partly	Good
17	North	Medium	Yes	New instruction	Partly
18	North	Large	Yes	Combination of new and old	Very much
19	South	Small	Yes	New instruction	Good
20	South	Small	Yes	New instruction, partly	Partly
21	South	Large	No provided some information by mail		
22	Jerusalem	Large	Yes	Combination of new and old	Good
23	Jerusalem	Large	Yes	New instruction	Very much

* Large (>600 beds); Medium (350–600 beds); Small (<350 beds).

their relevant information channels. An editorial suggestion was that the logo of the providing medical center should be present on the printed pages.

4. Discussion

The results of this case study illustrate how patients after BC surgery, in Israel, are provided with PT instruction. To the best of our knowledge this is a first description of such a project from a national perspective. Its importance derives from the existing consensus that all patients need instruction after BC surgery and the reality that not all of them receive

it. Variations exist regarding wording, timing, eligible patients and providing staff. In nearly half of the medical centers, post BC surgery patient instruction is considered a necessary part of the treatment program. This complies with existing evidence that all women need instruction after BC surgery [3–5, 10–12]. However, not all medical centers provide this service to all post-BC surgery patients.

Interestingly, the provision of the new instruction was more accepted in medium sized and small medical centers. In these centers the manager also reported good collaboration with the interdisciplinary team. It is possible that collaboration between PT staff and doctors and nurses is more common

in these centers than in large centers. Possibly the size of the staff in larger medical centers limits interaction between the various disciplines, making change processes more cumbersome than in smaller hospitals where the staff personnel are more able to become familiar and form interdisciplinary working relationships. Some of the interviewees were unaware of the existence of translated versions thus denying access to patients not literate in Hebrew. Ongoing work is required to increase staff and patient awareness of their availability and how important it is to provide patients with updated instruction [13] especially in the large medical centers where most BC surgeries are performed.

Main issues raised during interview:

4.1 Strengths and weaknesses of the new instruction

Over half of the respondents identified benefits offered by the instruction (*e.g.*, evidence-based, clear, directed at the patient, differ between high and low risk for side effects). The instruction content was approved by some of the interviewees with additional mention by one regarding improvement of patient wellbeing. This is in keeping with previous evidence regarding patient need for information [3–5]. Lengthy instruction was perceived by some as a weakness as immediately post-BC surgery women are often unable to concentrate and absorb much new information. Our stated goal was to make updated information available for post-BC surgery rehabilitation, for short and long-term side effect prevention and for relevant health related exercise [14–17]. When information is lacking patients may seek it at a later stage when treatment staff is less available and may find themselves confused by various sources of information. Selected post-surgical information can be highlighted, and the rest left for home perusal as the need arises. The authors agree with the interviewees who said the instructions are not suitable for every patient and clearly state in the instruction that provision needs to be approved by the treating clinician and individualized to the patient. However, the information is suitable for most patients and should be made readily accessible.

4.2 Format of instruction and timing for provision

In most medical centers, instruction is provided before discharge (1 to 2 days after surgery) despite evidence that supports interviewee claims that day one post-surgery is often a challenging time for women to concentrate on new information [10]. Only two medical centers offer post BC surgery instruction at out-patient follow-up clinics provided by nurses. Provision at a routine pre-surgery appointment is not in practice in Israel despite evidence for its benefits [18–20]. We recommend adopting this by all centers. In medical centers where post-surgery PT is not routinely available, pre-operative instruction and post-operative online practice may be a viable option.

Non-provision of post-BC surgery instruction is common due to short hospital stay and surgery scheduling. Solutions offered by interviewees were to increase PT coverage on Fridays for these patients, provision by the nursing staff or later

provision at follow up appointments in out-patient clinics. Instruction may be provided at routine preoperative appointments. Additional PT follow-up can be provided in HMO PT ambulatory clinics, some of which provide first contact access. This approach would also encourage patients to be pro-active in their rehabilitation. All solutions are reasonable providing they improve instruction accessibility.

A few options for instruction provision were mentioned by the interviewees. In medical centers providing the new instruction, a printed version is supplied pre-discharge. In these centers, PT is routinely provided to all patients after surgery as recommended [3–6]. Providing electronic access to patients was not supported by some interviewees out of concern for non-internet literate patients. The authors see cost, environmental issues, and paper waste as reason to prefer electronic information but do support policy of one interviewee noted-many patients would manage well with verbal instruction and referral to a website containing the complete post-surgical instruction. However, unexpectedly, most of the interviewees did not direct patients to the websites housing the material.

4.3 Collaboration with an interdisciplinary team

Variations in instruction provision are partly due to professional preferences, surgeons' request and surgery scheduling. Interviewees who supported providing post-surgery instruction, initiated meetings with department interdisciplinary teams. They presented the material and gained approval and co-operation. In medical centers where good collaboration between physical therapists and other staff was reported, there was also agreement that all women post BC surgery should be provided with instruction before discharge. In these centers, mainly new instruction material was used. In a few medical centers PT was only provided with physician referral and one interviewee claimed that a breast surgeon in her hospital denied the existence of post BC surgery side effects. This attitude is in opposition to evidence that patients report side effects more often than what is recorded in their medical files [16].

In addition, based on the authors' experience, physician evaluations sometimes focus on shoulder range of motion and edema, ignoring other side effects such as difficulty lying on the affected side, pain and Axillary Web Syndrome. It is important that patient assessment covers all side effects including those affecting quality of life [5, 7]. The importance of collaboration within an interdisciplinary team has also been emphasized in the literature and resources should be invested to strengthen staff cooperation [21, 22].

4.4 Suggestions for improvement

Opinions regarding improvement of the new instruction conflicted. Some interviewees recommended condensing the material provided while others felt that explanation detail for different surgeries, chemotherapy and radiotherapy was important. We support presenting patients with relevant instruction preoperatively, during the first days after surgery and referring to electronic sources for more information. We agree regarding rearranging instruction presentation, that explanation

followed by exercise instruction may be more convenient for the patient. We also agree that medical centers should give instructional material with their own logo and the existing logo was moved to the end of the document.

A limitation of this study is that some managers declined participation. The authors assumed that those declining interview were possibly none users of the updated instructions. Another limitation is the subjective nature of the data collected which is inherent with open ended questions. Finally, further work is necessary to evaluate the suitability of the new instruction from the patients' point of view.

5. Conclusions

Electronic distribution of new updated post BC surgery instruction to the managers of the PT services in the Israeli medical centers encouraged use. Some instruction correction was guided by interviewee recommendations. Medical conferences, seminars, staff meetings, lectures and inter-professional communication as well as electronic means should be used as mediums to encourage use of the instruction. Larger medical centers may need additional attention to increase awareness and application. The above may help promote patient access to updated information and guidance, contribute to risk reduction of BC surgery side effects which may substantially improve patient life quality.

AUTHOR CONTRIBUTIONS

TJ—Data curation, Formal analysis, Writing—Original Draft, Writing—Review & Editing; RP—Data curation, Review & Editing; JB—Writing—Review & Editing; HSC—Writing—Review & Editing.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Participate signed informed consent forms before choosing a date for an interview. The Ariel University Ethics Committee approved the study (AU-HEA-TY-20210405).

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

SUPPLEMENTARY MATERIAL

Supplementary material associated with this article can be found, in the online version, at <https://...>

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