Research Article

BJMP 2010;3(4):a339

Patients and Professionals attitude towards postoperative recovery: Academic Competency Assessment versus Patients Real Time Experience

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ABSTRACT

Open and laparoscopic surgery is evolving fastest ever; however the professional advice regarding patient's postoperative care and transient lifestyle changes remains historical. This study aimed to evaluate the knowledge based advice from surgical trainees and general practitioners about accumulative postoperative care after routine surgical operations in comparison to patient's journey back to routine life activities.

Materials and Methods:

Patients aged 65 years or less, who had routine surgical procedures over a six-month period completed a self-devised questionnaire with regards to time taken to return to normal activities following surgery. A further questionnaire was distributed to GPs and surgeons, including trainee doctors.

Results:

Varicose vein surgery: Patients take a shorter time to return to heavy work, driving and normal activities than that advised by both sets of doctors.

Open hernia repair: Patients take longer to return to office work and normal activities than that advised by both sets of doctors.

Laparoscopic hernia repair: Patients take a shorter time to return to heavy work, than that advised by both sets of doctors.

Laparoscopic cholecystectomy: Patients take longer to return to office work, but a shorter period of time to return to heavy work than that advised by both sets of doctors.

Conclusion:

The advice received by the patients with regards to their post operative recovery robustly varies between surgeons and non surgical professionals, and does not reflect the real time experience of patients. A consensus among surgeons and primary care physicians is essential to streamline surgical care pathway.

Introduction

Patients, in both the pre and post-operative periods, seek and receive advice from a number of health professionals. The advent and subsequent increasing use of day case surgery has also meant that patients have a reduced exposure to the surgical staff. This subsequently results in patients increasingly seeking post-operative advice from their general practitioner and allied health care professionals. The development of innovative surgical techniques has meant that the traditional teachings with regard to time taken for convalescence following surgery are somewhat outdated. The aim of this study was to initially determine the exact time taken for patients to return to work, driving and daily routine for a number of routine general surgical procedures. Secondly we aimed to determine the advice that GPs and surgeons would give to patients following routine surgery.

Patients and Methods

Patients aged 65 years or less, who had routine surgical procedures (open unilateral inguinal hernia repair, laparoscopic cholecystectomy, laparoscopic hernia repair and unilateral varicose vein surgery) over a six month period (January – June 2004) were identified from the theatre database. A single page questionnaire was sent to each patient (Appendix 1). Each patient was questioned with regard to the following:

- Occupation
- Time taken to return to normal activities following surgery
- Time taken to return to driving following surgery and any advice given
- Expected and actual time off from work following surgery
- Distribution and length of a sick note
- Expectations following surgery
- Experience of day case surgery

Questionnaires were returned and data collected on a specially constructed database. Concurrent to this a further questionnaire (Appendix 2) was distributed to a number of differing groups of health professionals. These were namely:

- GPs – this included the GPs of all patients who had been identified as having undergone surgery in the specified six month period as well as all doctors on the vocational training scheme.
- Surgeons – this included all senior house officers on the Yorkshire School of Surgery Basic Surgical Training Scheme and all Higher Surgical Trainees (General Surgery)

within the Yorkshire Deanery including non-carrier grade doctors.

Replies were anonymous and each health care professional was asked with regards to the advice they would give to an "average" patient undergoing the four procedures with regard to time it would take to return to work (office or heavy), driving and return to normal activities. They were also asked whether they felt the procedure was suitable for day case surgery.

Statistical Analysis

Statistical analysis was undertaken using the Analyse-it statistical package (Leeds, UK.). Non-parametric analysis using either Kruskall 1- way ANOVA or the Mann-Whitney U test was used to test for a difference between the medians of independent samples. The Wilcoxon signed-ranks test was used to test for a difference between the medians of 2 related samples. Significance was determined as a p-value < 0.05.

Results

Nineteen of 48 patients who underwent varicose vein surgery (39%), 44 of 72 patients who underwent a laparoscopic cholecystectomy (61%), 23 of 35 patients who underwent a laparoscopic hernia repair (65%) and 12 of 23 patients who underwent an open inguinal hernia repair (52%) over the six month period returned a completed questionnaire. Of the health care professionals, 65 primary care physicians were identified and sent questionnaire, of which fifty three GPs (81.5%) replied. From the Yorkshire deaneries database sixty five trainees were identified (Spr, SHO, HO, non-carrier grades), of which 41(63.2%) surgically trained doctors returned a completed questionnaire. Among the responders, we also include four consultant surgeons who have performed the operations on patients in our hospital. Overall one hundred and thirty participants were sent study forms, of which 94 (72.3%) health professionals responded with completed questionnaire.

Varicose Vein Surgery (Table 1)

Of the 19/48 patients who returned a completed questionnaire, eleven (57.8%) were women with an overall median age 44 years (range 21-64 years). Seventeen of the 19 patients worked (89%), 11 of who undertook office work (57.8%). Patients tended to return to driving and normal activities quicker than that recommended by doctors. GPs and surgeons offered similar advice with regard to return to all activities following varicose vein surgery. Nine of the 19 patients were uncertain about whether they have received any advice or perhaps forgotten any information regarding when to return to driving. Five patients received no advice about when to return to work. No significant difference was observed between expected time off work and actual time off work experienced by the patients (2 weeks vs. 1 week – p=0.15 Wilcoxon Rank test). Fifteen of the 19patients (79%) said that their recovery was what they had expected with the reasons for not meeting expectations being wound infection in 2, bruising and a larger incision in one patient each. Seventeen patients had their surgery performed as a day case (89.4%). Fifteen patients stated that they would have surgery again as a day case (88.2%).

Laparoscopic Cholecystectomy (Table 2)

Of the 44/72 patients who returned a completed questionnaire 39 were women (88.6%) with an overall median age 47 years (range 20-63 years). Thirty-two of the 44 patients worked (72%), 25 of who undertook office work (56%). Patients returned to office work significantly later than that recommended by both groups of doctors. Overall, patients took a significantly shorter time to return to work that involved lifting heavy objects. Surgeons also recommended shorter times to return to work when compared with GPs. Of further interest is the observation that it took a shorter time for those patients undertaking heavy work to return to work when compared with the patients undertaking office work. There was no significant difference in the time taken to return to driving and normal activities experienced by the patients when compared to the advice given by both groups of doctors. Ten of the 44 patients (22%) stated that they had received no advice regarding when to return to driving or perhaps they may have no memory about driving instructions. Seven patients stated they received no advice about when to return to work (15%). Overall, patients expected a significantly shorter time off work than was actually experienced (2.5 weeks vs. 4 weeks – p<0.01 Wilcoxon Rank test). Twenty-one of the 44 patients (48%) said that their recovery was not what they had expected (47%). Of these 21 patients, 6 said that their recovery was better than expected (28%), 5 said that their recovery was longer than expected (23%), and the rest either complained of pain or wound infection. Seventeen patients had their surgery performed as a day case (38%). Of these 17, 11 said that they would have surgery again as a day case (64%). A significantly higher proportion of GPs felt that this procedure was suitable for day case surgery compared with the proportion of patients who actually underwent the procedure as a day case (p=0.02 chi squared test).

Laparoscopic Inguinal Hernia Rapair (Table 3)

Of the 23/35 patients who returned a completed questionnaire, the majority had bilateral hernias repaired. 22 were men (95%) with an overall median age 48 years (range 35-63 years). Twenty one of the 23 patients worked (91%), 10 of who undertook office work (43%).

No significant difference was found between the actual time taken to return to office work and the advice given by either group of doctors. Patients returned to heavy work significantly sooner than that recommended by both groups of doctors. There was no significant difference in the time taken to return to driving and normal activities experienced by the patients when compared to the advice given by both groups of doctors.

Activity		Time (IQR in Weeks)	Overall (K)	Surgeons vs. GPs (M)	Surgeons vs. Patients (M)	GPs vs. Patients (M)
Office Work	Surgeons	2 (1-2)	0.13	0.56	0.10	0.05
	GPs	2 (1-2)				
	Patients	1 (1-2)				
Heavy Work	Surgeons	3 (2-5)	<0.01	0.75	<0.01	<0.01
	GPs	4 (2-4)				
	Patients	1 (1-1.75)				
Driving	Surgeons	2 (1-2)	<0.01	0.24	<0.01	0.02
	GPs	2 (1-2)				
	Patients	1 (1-1)				
Normal Activities	Surgeons	2 (2-4)	0.05	0.57	0.04	0.02
	GPs	2 (2-4)				
	Patients	1.5 (1-2)				

Table 1: Time taken to return to work, driving and daily activities as experienced by patients and as suggested by both surgically trained doctors and GPs for unilateral varicose vein surgery. Time: Median time to return to activity (IQR - weeks) K: Kruskal Wallis ANOVA. M: Mann Whitney U test. P<0.05 deemed as significant.

Activity		Time (IQR - weeks)	Overall (K)	Surgeons vs. GPs (M)	Surgeons vs. Patients (M)	GPs vs. Patients (M)
Office Work	Surgeons	2 (1-2)	<0.01	0.02	<0.01	<0.01
	GPs	2 (2-3)				
	Patients	5 (3-7)				
Heavy Work	Surgeons	4 (2-4)	<0.01	<0.01	0.26	0.04
	GPs	4 (4-6)				
	Patients	2 (1.5-4)				
Driving	Surgeons	2 (1-2)	0.19	0.19	0.10	0.43
	GPs	2 (1-3)				
	Patients	2 (1-4)				
Normal Activities	Surgeons	2 (1-4)	0.19	0.20	0.09	0.47
	GPs	3 (2-4)				
	Patients	4 (2-6)				

Table 2: Time taken to return to work, driving and daily activities as experienced by patients and as suggested by both surgically trained doctors and GPs for laparoscopic cholecystectomy. Time: Median time to return to activity (IQR - weeks) K: Kruskal Wallis ANOVA. M: Mann Whitney U test.

Activity		Time (IQR - weeks)	Overall (K)	Surgeons vs. GPs (M)	Surgeons vs. Patients (M)	GPs vs. Patients (M)
Office Work	Surgeons	2(1-2)	0.73	0.56	0.48	0.714
	GPs	2 (1-2)				
	Patients	2 (1-2.75)				
Heavy Work	Surgeons	6 (4-6)	0.03	0.31	0.01	0.03
	GPs	4 (4-6)				
	Patients	3 (2-4)				
Driving	Surgeons	2 (1-4)	0.22	0.21	0.12	0.46
	GPs	2 (1-2)				
	Patients	1 (1-2.25)				
Normal Activities	Surgeons	2 (2-4)	0.41	0.87	0.31	0.17
	GPs	3 (2-4)				
	Patients	2.5 (1.25-3)				

Table 3: Time taken to return to work, driving and daily activities as experienced by patients and as suggested by both surgically trained doctors and GPs for laparoscopic hernia repair. Time: Median time to return to activity (IQR - weeks) K: Kruskal Wallis ANOVA. M: Mann Whitney U test.

Activity		Time (IQR - weeks)	Overall (K)	Surgeons vs. GPs (M)	Surgeons vs. Patients (M)	GPs vs. Patients (M)
Office Work	Surgeons	2 (2-2)	0.01	0.07	<0.01	0.05
	GPs	2 (1.25-3)				
	Patients	4 (3-4)				
Heavy Work	Surgeons	6 (4-6)	0.57	0.49	0.47	0.39
	GPs	6 (4-7.75)				
	Patients	5 (4.25-5.75)				
Driving	Surgeons	3 (2-4)	0.03	0.06	0.02	0.15
	GPs	2 (2-3)				
	Patients	2 (1-2)				
Normal Activities	Surgeons	2 (2-2)	<0.01	0.07	<0.01	0.01
	GPs	2 (1.25-3)				
	Patients	4 (2.5-5)				

Table 4: Time taken to return to work, driving and daily activities as experienced by patients and as suggested by both surgically trained doctors and GPs for open hernia repair. Time: Median time to return to activity (IQR - weeks) K: Kruskal Wallis ANOVA. M: Mann Whitney U test. P<0.05 deemed as significant.

Three (13%) patients were uncertain about receiving advice regarding when to return to driving or they might have no memory of information received. Six (26%) patients stated they cannot recall about receiving any advice regarding when to return to work. There was no significant difference seen in the time patients expected off work than was actually experienced (2 weeks vs. 2 weeks – p>0.05 Wilcoxon Rank test). Nine of the 23 patients (39%) said that their recovery was not what they had expected. Of these 9 patients, 2 (22%) said that their recovery was longer than expected, 4 (44%) said that they experienced more pain than they expected; one (11%) said that the recovery time was much shorter and one (11%) experienced some bleeding from the umbilical port.

Twenty patients (86%) underwent their surgery as a day-case. Of these 20, 16 (69%) said that they would have their surgery again as a day case.

Open Inguinal Hernia Repair (Table 4)

All 12/23 patients who returned a completed questionnaire were men with an overall median age 54 years (range 42-65 years). Nine of the 12 patients worked (75%), 5 of whom undertook office work (41%).

Patients took a significantly longer time to return to office work when compared to the advice given by either group of doctors. No significant difference was observed in the time taken for patients to return to manual work and the advice given by either group of doctors. Surgeons advised a longer period of abstinence from driving compared to that actually undertaken by the patients. Patients took a significantly longer time to return to normal activities when compared to the advice given by either group of doctors. Two patients (16%) replied that no information was given or may not recall in regards to when to return to driving and one patient (8.3%) stated that he cannot recall any professional advice he has received about return to work. There was no significant difference seen in the time patients expected off work than was actually experienced (3 weeks vs. 5 weeks – p>0.05 Wilcoxon Rank test). Five patients (41%) said that their recovery was not what they had expected. Of these 5 patients, 4 (80%) said that they experienced more pain than they expected and one (20%) experienced more bruising. Seven patients (58%) underwent their surgery as a day-case and of these, 5 (71%) said that they would have their surgery again as a day case.

Discussion

With the advent of day case surgery there is an increasing number of health professionals giving advice to patients about their post-operative course. Advocates of minimal access surgical techniquesand day case surgery claim that this is associated with a reduction in the periodof postoperative recovery[1, 2]. The proposed benefits,however, may never be seen if there is no concordance in the advice given by medical practitioners. The advice given to patients is still based upon personal experience rather than firm scientific evidence and indeed, there have been few studies that have analysed patients return to normal activities following surgery. Majeed *et al* questioned 59 general practitioners and61 surgeons with regard to the time taken for young (25 years old) and older (55 years old) patients to return to sedentary, light manual and heavy manual work following a number of common surgical procedures (including varicose vein surgery, unilateral open inguinal hernia repair and laparoscopic cholecystectomy) [3]. The moststriking finding was the enormous variation in opinion betweendifferent doctors. For example, a 55 year old heavy manual workerhaving a haemorrhoidectomy could be given between one and 16 weeks off work depending on which doctor he or she consulted. Such wide variation was not observed in our study and in general, the advice given by both GPs and surgeons was similar apart from the fact that surgeons advised a shorter period off office work for patients undergoing laparoscopic cholecystectomy. The end of the twentieth century has brought an exponential growth in new surgical techniques for standard general surgical procedures. Not only there has been an increase in the use of mesh for open inguinal hernia repairs but there has also been an increasing use of laparoscopic hernia repair, with the recent guidance by the national institute for health and clinical excellence (NICE) liable to further increase the role of laparoscopic repair[4]. Furthermore, there has been the widespread acceptance of laparoscopic cholecystectomy and an increased awareness of the role of general anaesthetic in increasing the number of procedures that can be undertaken as a day case. Given these continuing developments in surgical technique as well as in both pre- and post-operative care the present advice and experience of GPs could be seen to be somewhat out-dated.

Two surgeons within the unit perform laparoscopic hernia repair (one the transabdominal preperitoneal repair (TAPP) and one the totally extraperitoneal (TEP) repair) with three performing solely the open technique. Although our results based on small sample size but match with evidence based recommendation by NICE, suggests that laparoscopic repair does reduce the time taken for post operative recovery when compared to open repair. In fact, all patients returning to heavy work following laparoscopic hernia repair do so quicker than that advised by either GP's or surgeons although unlike the surgeons, GPs do tend to recognise the likely reduction in pain experienced following a laparoscopic repair and alter the advice given to those in heavy work accordingly. Restriction of activity on the advice of surgeons may be basedon their concern for tissue healing and strength, which may have arisen in the days when absorbablesutures such as catgut were used. The use of mesh should now change this thinking and it has indeed been shown that there is no increase in the recurrence of inguinal herniasafter early return to work [5]. Office workers undergoing an open inguinal hernia repair take a longer time to return to work (4 weeks) than that advised by both groups of doctors. Furthermore, patients undergoing laparoscopic cholecystectomy

take a shorter time to return to heavy work than office work. These results do require more evaluation. At face value it would appear that doctors underestimate the time taken for return to office work and in the case of the cholecystectomy overestimate the time it takes to return to heavy work. In fact the patients in office work took a significantly longer time to return to work following cholecystectomy than those in heavy work. Although only 20% of the working cohort of patients who underwent cholecystectomy were in "heavy work" this result probably represents the fact that a high proportion of people in heavy work are self-employed and time off work is money lost. Patients who are selfemployed return to work much sooner than those in salaried jobs [6]. Furthermore, there may well be an element of low job satisfaction in people in office work, which has also been shown to be a major predictor of delayed return to work [7]. The time taken to return to work, however, may be dependant on the patients' expectation of convalescencetime formed prior to surgery, which in many cases is based upon advice given by medical practitioners. Furthermore, the attitude of the medical profession in the post-operative period is important as they have to issue the certification necessaryto ensure financial compensation for the patient.

Patients undergoing varicose vein surgery returned to heavy work, driving and normal activities significantly sooner than that suggested by either group of doctors. This may well be down to a recently concerted effort to encourage patients to walk to reduce the risk of DVT. All patients had long saphenous vein (LSV) surgery by either the standard high tie, stripping of the LSV and multiple stab avulsions or by local ligation of the LSV. Overall it would appear that a one-week period of recuperation is all that is needed following unilateral varicose vein surgery. The advent of minimally invasive treatment for varicose veins may result in a shorter post-operative recovery period [8].

There are some shortcomings associated with this study. Questionnaire based studies always present methodological issues including problems with response rate. There is never an "average patient" and normal activities for one patient may be completely different from those of another patients and any advice given should be individually tailored. Furthermore, occupations were not classified as either manual or office based prior to the start of this study, but were classified on an individual basis during collation of the data. However, we hope that the data presented here will help medical practitioners advising their patients about postoperative routine life activities.

Conclusion

We believe that our overall practice is not different with regards to the pre, peri and post-operative management of patients when compared to the majority of units within the UK. However, there may well be some variation with regard to healing and time taken to return to work and we would encourage other units to undertake similar studies to determine convalescence times.

Appendix 1

Sex (Male / Female)	
Age at time of surgery.	
Do you work If yes, what job do you do?	Yes / No
How long did it take to you to return to your normal activities of daily living following your operation (weeks).	
If you drive, how long did it take for you to start driving again (weeks). What advice, if any, were you given about driving after your operation?	
The following questions are to be completed if you do work.	
Prior to your surgery, did you receive any information about how long you would be off work? If YES, what information was given to you?	Yes / No
How long did you expect to be off work following your surgery (weeks)? How long were you actually off work following your surgery (weeks)?	
If you are in employment: Did you get a sick-note: • From the hospital • From the GP How long was the sick note for (weeks)? Did the sick note need to be extended?	 Yes / No Yes / No Yes / No
Was the recovery after your operation as you had expected it to be? If no, why not?	Yes / No
Did you go home on the same day as you had your operation? If YES, would you do the same if you had the operation again or would you prefer to stay overnight after your operation? If you would prefer to stay overnight, why?	Yes / No

Appendix 2

Dear Doctor.

We at xxxxxx Hospital are undertaking a study to determine whether the information given to patients following routine general surgical procedures is consistent and compares to the actual recovery period experienced by the patients themselves. We would be grateful if you would consider the four general surgical procedures below and give us an average length of time (in weeks) that you would advise the patient to abstain from:

(a) office work
(b) heavy work
(c) driving

(d) to return to normal activities of daily living

The general surgical procedure to be considered are

1) mesh repair of an inguinal hernia (unilateral)
2) laparoscopic hernia repair
3) unilateral varicose vein surgery
4) laparoscopic cholecystectomy

	Office Work	Heavy Work	Driving	Normal Activities
Mesh repair inguinal hernia				
Lap. Repair inguinal hernia				
VV surgery				
Lap Chole				

Conflict of Interests
None Declared
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