Use of the internet by patients undergoing elective hernia repair or cholecystectomy

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ABSTRACT

INTRODUCTION Patient-directed information available on the internet is not always regulated; it may be confusing and sometimes just overwhelming. We aimed to establish the proportion of patients undergoing two common surgical procedures, who searched the internet for information about their operations and to assess the usefulness of the information they received.

PATIENTS AND METHODS A total of 105 consecutive patients undergoing elective abdominal wall hernia repair ($n = 54$) or laparoscopic cholecystectomy ($n = 51$) in a single surgical firm were included in the study. Patients were counselled about their operation in pre-operative assessment clinics and standard trust information leaflets were provided without any mention of this study. Patients were then asked to complete a questionnaire on the morning of their operation.

RESULTS All patients completed the questionnaire. Of the patients, 59% stated that they had access to the internet and 77% of these accessed the internet over 2 h a week. Of the patients with internet access, 31% used it to acquire additional information about their operations and 58% used internet search engines. Of the patients who searched the internet regarding their operations, 26% were confused and/or worried by the information they received.

CONCLUSIONS A significant proportion of patients undergoing common surgical procedures used the internet and about one-third of them specifically sought information about their operation on the internet. Such information can cause worry and confusion in patients. Our study highlights the need for regulated, comprehensible, patient information on hospital websites to which patients should be directed.

KEYWORDS

Internet – Hernia – Cholecystectomy

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Internet use by the general population is rapidly increasing. UK Government data released by the Office for National Statistics revealed that between 2001/02 and 2006 the proportion of adults in Great Britain who used the internet increased from 48% to 60% with internet connection being present in about 61% of households in 2007.¹ It is also well recognised that people frequently use the internet for health-related information with about 80% of American internet users going online for health information.² Such online information is unregulated, sometimes sponsored and often overwhelming to the patients. It has been shown that the available health-related information on the internet is often deficient or unreliable.^{3–6}

Being a relatively new technology, the use of internet for health information is associated with younger age and higher income and education levels.^{7–9} Internet use for personal disease-related information has been found to be high in certain subgroups of surgical patients such as bariatric patients and patients suffering from inflammatory bowel disease.^{9,10} However, not much is known about the pattern

of internet use amongst patients undergoing abdominal wall hernia repair and cholecystectomy. Hernia repair and cholecystectomy are two of the commonest general surgical procedures performed, with over 167,000 cases performed within the NHS trusts in England in the financial year 2005–2006.¹¹ Pattern of internet use by this large subgroup of general surgical patients has not been previously studied and hence its effect or potential is unknown.

In this study, we aimed to establish the proportion of patients undergoing these two common surgical procedures, who searched the internet for information about their operations and to assess the usefulness of the information they received.

Patients and Methods

A total of 105 consecutive patients undergoing elective abdominal wall hernia repair ($n = 54$) or laparoscopic cholecystectomy ($n = 51$) in a single surgical firm were included in the study. Maintaining usual practice, all

Table 1 Patient demographics

Operation	Males	Females	Age		
			16–40 years	41–65 years	> 65 years
Cholecystectomy (<i>n</i> = 51)	10	41	15	25	11
Hernia repair (<i>n</i> = 54)	47	7	5	31	18
Combined (<i>n</i> = 105)	57	48	20 (19%)	56 (53.3%)	29 (27.6%)

patients were counselled about their operations in the out-patient and the pre-operative assessment clinics and standard trust information leaflets were provided without any mention of this study. Patients were then asked to complete a questionnaire, on the morning of their operation on arrival to the ward, by one of the authors. No patient-identifying data were recorded on the questionnaire (Appendix 1).

Data were examined as a single group combining patients having hernia repair and cholecystectomy. Statistical analysis was performed using GraphPad InStat v.3.06 for Windows (GraphPad Software, San Diego, CA, USA).

Results

Study group

All consecutive 105 patients undergoing elective abdominal wall or groin hernia repair (*n* = 54) and laparoscopic cholecystectomy (*n* = 51) completed and returned the questionnaires. As expected, and in contrast to patients having cholecystectomy, patients having hernia repair had a predominance of males and were generally older in age (Table 1).

The majority of patients in the study population were aged < 65 years (19% aged 16–40 years; 53.3% aged 41–65 years; and 27.6% aged > 65 years).

Of the study cohort, 103 (98%) patients received the printed trust information leaflets during their pre-operative assessment. Of these, 95.1% (98 of 103) found the information in the leaflet very good (82 of 103) or good (16 of 103). Five patients (4.9%) found the information in the leaflet satisfactory. None rated the leaflet as poor or very poor.

Patients with internet access

Internet access was available to 59% (62 of 105) patients. Of these, 77% accessed the internet for over 2 h a week. Of the patients with internet access, 31% used it to acquire additional information about their operations and 58% used internet search engines to acquire additional information.

Internet access was more frequently available for the younger age groups with 65% and 68% of patients aged 16–40 years and 41–65 years, respectively, having access to internet. In contrast, only 38% of the patients aged over 65

years had access to the internet. Among patients who used the internet to acquire additional information there was a significant inverse trend with increasing age groups ($P = 0.0169$, chi-squared test for trend; Fig. 1).

Level of education had no influence on the likelihood of using the internet for additional information with 30.8% of patients with education level at graduate or above using the internet for this purpose compared to 30.6% of patients with less than graduate level education ($P = 1$, Fischer's exact test; Fig. 2).

Figure 1 Inverse trend in the use of internet for additional information ($P = 0.0169$, chi-squared test for trend).

Figure 2 Of patients, 30.6% with less than graduate education used internet for additional information versus 30.8% of patients with graduate or above level of education ($P = 1$, Fischer's Exact test).

The average weekly duration of internet use had no influence on the likelihood of using the internet for additional information. The median weekly duration of internet use in patients who used it to acquire additional information was 3 h/week in contrast to 2 h/week in patients who did not access internet for additional information ($P = 0.23$, Mann-Whitney U-test).

Of the patients who searched the internet regarding their operations, 79% rated the information they had found as either very good or good; however, 26% were also confused and/or worried by the information they received.

Discussion

Internet use has rapidly increased in the community and is likely to increase with time. Data from a British population survey revealed that 61% of households had internet connection in 2007 with 60% of people aged 16 years and older using internet everyday.¹ Though internet usage is known to reduce with age, this British population survey showed that a sizeable proportion (52%) of 55–64-year-olds used the internet.¹

We decided to study the pattern of internet use for procedure-related information in patients undergoing abdominal wall (epigastric, para-umbilical, incisional and groin) hernia repair and cholecystectomy as these are common, standardised, general surgical procedures performed. Data from the NHS Information Centre, Hospital Episode Statistics (2005–06) for NHS Trusts in England alone revealed that over 167,000 such procedures were performed.¹¹ Over 52% of these patients were in the age group of 15–55 years.¹¹ Thus, a substantial number of these people fall in the age group most likely to use the internet.

Our study population had access to the internet comparable to the national average. As expected, we found that the use of internet to search additional information declined with increasing age. However, we found that level of education did not influence such use of internet. This is in contrast to previous population studies and might be explained by the fact that as the internet becomes more easily available, it is no longer a tool for the educated few.

Almost all of our patients (98%) were provided with printed trust information leaflets regarding their operation and over 95% of them found that information 'very good' or 'good'. Nevertheless, a significant proportion of these patients went on to search further information about their procedure on the internet.

Of the patients who searched the internet for additional information, 58% did so using a search engine. The prioritisation of websites found by search engines is not only confusing but also subject to bias, some of which is commercial. Google search performed separately for key words 'hernia repair' and 'cholecystectomy' in July 2008 resulted in 714,000 and 711,000 web pages, respectively. It has been demonstrated that most people looking for health-related information through search engines use short, often mis-spelled search phrases and seldom

go beyond the first page of search results.¹² Various studies have also shown that the quality of information available through such search web pages is often sub-optimal.^{3–6} Poor results were also seen in web searches for a simple surgical search phrase like 'inguinal hernia'.¹³ There is much variability in the available information with regards to surgical treatment options and surgical complications.¹⁴ It comes as no surprise, therefore, that 26% of our patients who searched the internet were left confused or worried.

Thorough pre-operative counselling of patients is often associated with better subjective results from a procedure. Sjöling *et al.*¹⁵ demonstrated that delivering specific pre-operative information to patients resulted in better pain control, decreased anxiety and improved satisfaction with the procedure. In a study by Danquah and colleagues,¹⁶ patients who were advised to look up pre-selected internet sites prior to inguinal hernia repair had higher satisfaction rates with the procedure and felt that their expectations were met about the procedure when compared to control patients. It is, therefore, easy to conceive that patients who have confusing or worrying pre-operative information may not be well satisfied with the outcome.

Conclusions

This study has shown that a substantial number of patients undergoing common surgical procedures seek further information from the internet. We expect that this number will only rise with time. Such information available on the internet can cause worry and confusion in patients. Our study highlights the need for regulated, comprehensible, patient information on hospital websites to which patients should be actively made aware.

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Appendix 1: Questionnaire

Section 1 – About you

1. What is your age? *Please circle the correct answer:*
16–17 years old	18–24 years old
25–40 years old	41–50 years old
51–65 years old	65+ years old
2. What is your sex?
Male	Female
3. What is your level of education?
O level/GCSE (or equivalent)
A level
Graduate
Postgraduate
None
4. What is your current occupation (or previous occupation if not working at the moment/retired)?
- Please state: _____
5. Which surgical procedure are you having?
Cholecystectomy
Hernia

Section 2 – Information

6. Did you receive any written information (e.g. leaflet) from staff at the hospital about your surgical procedure?
Yes	No	Not sure/can't remember
- If yes, how would you rate this information?
Very good	Good	Satisfactory	Poor	Very poor
7. Do you have easy access to the internet?
Yes	No
8. How many hours per week do you spend on the internet?
- Please state approximate time: _____
9. Did you use the internet to find out more information about your condition/surgical procedure?
Yes	Go to Question 10
No	Go to Question 16

10. How much time did you spend on the internet looking for more information? Please state approximate time: _____
11. Did you use a particular search engine on the internet to find out more information (e.g. Google, Yahoo, MSN)?
Yes	No
- If yes, please state: _____
12. Did you use a particular website(s) to find out more information?
Yes	No
- If yes, please state which website(s) you used: _____
13. How would you rate the information you found on the internet?
Very good	Good	Satisfactory	Poor	Very poor
14. Did you find the information on the internet confusing?
Yes	No
15. Did you have any worries or concerns after reading the information on the website?
Yes	No
- If yes, did you do anything to clarify your concerns?
- _____

Section 3 – Overall

16. Was there any information that you were not told but would have found helpful?
Yes	No
- If yes, please comment:
- _____
17. How do you think we could improve patient information?
- _____
- _____
- _____