Multimedia effect on preoperative Knowledge and postoperative recovery of patients undergoing laparoscopic cholecystecomy

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Patient education

- Patient education is defined as the process of influencing patient behavior and producing the changes in knowledge, attitudes and skills necessary to maintain or improve health. The more educated a patient is, the more likely he is actively engaged in communication.
- Many different approaches to pre-operative education have been used including:

(a) group lectures,
(b) individual teaching,
(c) printed information,
(d) learning packages
(e) audio-visual presentations and
(f) combination of the above

Materials and Methods

- Aim of this study is the evaluation of of the impact of a multimedia CD (MCD) on patient's undergoing elective Laparoscopic Cholecystectomy preoperative knowledge, anxiety and postoperative recovery.
- One hundred and twenty consecutive candidates for elective LC were assigned randomly to four groups.

  (1)Group A included 30 patients preoperatively informed regarding LC through the MCD presented by Registered Nurse (RN).

  (2)Patients in group B (n=30) were informed through a leaflet.

  (3)Patients in group C (n=30) were informed verbally from a RN.

  (4)The control group D included 30 patients informed conventionally by the attending surgeon and anesthesiologist, as every other patient included in groups A, B, C.

The Multimedia CD

- The CD was designed in order to be flexible, dynamic, portable and cheap, permitting easy navigation even to someone unfamiliar to a computer machine. Screen design is consistent. Fast access to menus and screens are possible. Regarding controls, exit, backward, forward and skip functionality are available all the time.
- The multimedia program contains information concerning fundamental elements of bile anatomy and physiology, aspects of the disease (cholelithiasis), details on the procedure (LC), and the alternative options (open cholecystectomy), possible complications, duration of hospital stay and advices about recovery and life after LC.

Preoperative and Postoperative Questionnaire

- All patients after the structured informative session and before the operation fulfilled a preoperative questionnaire which contained eleven knowledge questions and an anxiety scale. All knowledge questions scored equally with others and the anxiety scale was conducted using the translated Amsterdam Preoperative Anxiety Scale and Information Scale (APAIS) on which scores could range from 6 to 30.
- As soon as the operation ended postoperative pain and nausea scores were measured using a Numerical Rating Scale (NRS) scale, 8 and 16 hours after the patient had returned to the wards.

Table 1 Multiple regression analysis for the variable "Knowledge score".

Variable	**Knowledge score** P value (Adj.R^2) A, B(CI of B)
Group C	*0.009 (0.3)* *9.119,- 0,662 (-1.156_-0.168)*
Age	*0.05 (0.30)* *9.119,- 0.490 (-0.980_-0.0)*

Table 2 Multiple regression analysis for the variable "APAIS II".

Variable	APAIS II P value (Adj.R^2) A, B(CI of B)
Group C	*0.001 (0.206)* *2.697,-1,667 (-2.595_-0.739)*
Educational level	*0.001 (0.206)* *2.697, 0.331 (0.140_0.523)*

Table 3 Multiple regression analysis for the variable "APAIS ".

Variable	APAIS P value (Adj.R^2) A, B(CI of B)
Gender	*0.03 (0.133)* *19.279, -2.341 (-4.452_-0.23)*
Age	*0.007(0.133)* *19.279, -2.353(-4.064_0.642)*
Group D	*0.003 (0.133)* *19.279, 3.561 (1.215_5.907)*

Table 4 Multiple regression analysis for the variable "Pain score".

Variable	Pain score P value (Adj.R^2) A, B(CI of B)
Gender	*0.000 (0.147)* *4.028, -0.899 (-1.363_-0.434)*
Group D	*0.013(0.147)* *4.028, 0.658 (0.144_1.172)*

Conclusions of multiple regression analysis

- In the multiple regression analysis, structurally informed patients and specifically groups A and B, achieved a better knowledge score regarding LC, answering correctly to more questions comparing to study group C and of course control group D, ($p=0.009$), as it is shown in Table 1. This finding suggests that knowledge gain during conventional informative sessions is suboptimal.
- Not surprisingly, patients older in age, achieved lower knowledge score than younger patients independently of the educational tool used with $p=0.05$
- Our results, in the multiple regression analysis, proved that conventional information provided in patients of group D increases patient anxiety. Specifically, patients informed only by their doctor had a higher APAIS score than the patients of groups A, B, C ($p<0.05$, see Table 3). Also older and male patients expressed lower anxiety levels than the younger female ones with pvalue=0.007 and pvalue=0.03 respectively.

Conclusions of multiple regression analysis

- According to the study, patients who were informed verbally expressed a lower need for preoperative information comparing to the rest of the groups (p value=0,001) and this need is higher for patients who were better educated (p value=0,001)(Table 2). We can assume that at least in Greece, patient's preoperative need for information is not full filled during conventional informative sessions.
- Patients who were informed appeared to feel less pain than those who were informed conventionally (p value=0,013). Especially male patients found postoperative pain less disturbing and recovered faster than women who spent more time in bed (p value =0,000)(Table 4).

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