Original Article

Status of Evidence Based Surgery Among General Surgeons

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Abstract

Objective: To see the status of EBM among general surgeons of Faisalabad and Gujranwala. **Settings and methods:** A survey was conducted among the general surgeons in December 2010 through a questionnaire comprising of 10 questions for which level 1evidence is available. **Results**: Out of 110 general surgeons who were distributed the questionnaire 96 responded. The correct response rate was only 31.25% (300/960). Only two questions (Q4 and Q5) were answered correctly by a majority of the participants. There was no significant difference of correct response rate between teaching hospital based and non teaching hospital based general surgeons (31.59% vs. 30.61%). **Conclusion:** The status of EBM among general surgeons seems to be disappointing and a great effort is required to develop its culture. **Key Words:** Evidence based medicine (EBM)

INTRODUCTION

As surgeons our goal should be to provide optimal, effective and high quality care to our patients. To achieve this goal our clinical practice should be based on the best available scientific evidence and one should always be ready to depart from individual experiences, dogmas and outdated information when contrary scientific evidence is available. During the last two decades evidence based medicine (EBM) has emerged as a strong reality. EBM is the conscientious, explicit and judicial use of current best evidence in making decisions about the care of individual patients [1]. This helps in minimizing medical errors, uneven health care quality, insufficient or wrong use of health resources and poor patient experiences. EBM developed when clinical scholars investigated the decision making in medical practice and by critical inspection of the evidence used in the medical field. It was observed that the medical practice was often based on individual experiences, dogmas, animal experiments and outdated information. This realization led to the development of a ranking system for the scientific evidence which improved with time and finally in May 2001 five levels of evidence were established for evidence- based medicine (Table-1)[2].

Table-1
Oxford center for Evidence-Based Medicine-Levels of Evidence

1.a (The best level)	Systematic review of homogeneous randomized controlled trials (RCT)
1.b	Individual randomized controlled trial (RCT) with narrow confidence interval
2.a	Systematic review of homogeneous cohort studies
2.b	Individual cohort study or low quality RCT; e.g. <80% follow up
3	Systematic review of homogeneous case control studies
4	Individual case control study
5 (lowest level)	Expert opinion without explicit critical appraisal

In the field of surgery an increasing number of randomized controlled trials, meta analysis and guidelines are being published and thus many questions concerning the routine surgical practice can now be answered by evidence based medicine [3]. The purpose of this study was to determine whether general

surgeons incorporate the best available scientific evidence into their clinical practice.

METHODS

A survey was conducted among general surgeons practicing in Faisalabad and Gujranwala in December 2010. The questionnaire for the survey (Table -2) included 10 questions for which there are known correct answers with a level 1 evidence based on meta analysis, randomized controlled trials or clinical guidelines.

INCLUSION CRITERIA

The questionnaire covered the field of general surgery alone and only general surgeons with a higher degree in general surgery i.e. FCPS including final year trainees, FRCS or MRCS were included. The questions covered the following aspects of general surgery:

- Preoperative bowel preparation
- Drainage after colectomy
- Postoperative feeding
- Inguinal hernia
- Appendectomy
- Antibiotic prophylaxis
- Breast cancer
- Septic shock
- Initial abdominal access technique in laparoscopic surgery
- Acute pancreatitis

EXCLUSION CRITERIA

The general surgeons working in other specialties of surgery and the postgraduate trainees who were not in the final year were excluded from the study. Any general surgeon who wanted to return his response on the next day was also excluded from the study. Participants were asked to choose one of the four responses (never, rarely, often, or always). The answers were analyzed using binary system that is, the responses never and rarely were considered together indicating a negative response and the answers often and always indicated a positive response. The exceptions were two questions which were formatted to choose one best answer. The correct evidence based answers to these questions with references are given in Table-3. Questionnaires was distributed personally and the response was collected on the spot.

Table-2
The questionnaire for the survey

Age	Qualification level FCPS, FRCS, MRCS, Trainee	Place of Practice Teaching Hospital	Place of Practice Non teaching Hospital
1. Do you perform mechanical bowel preparation before elective colonic resection?			
Often	Always	Never	Rarely
2. Do you leave an abdominal drain after right hemicolectomy?			
Often	Always	Never	Rarely
3. Do you permit enteral feeding on the first post-laparotomy day?			
Often	Always	Never	Rarely
4. Do you repair an inguinal hernia in a 45-year-old man using the Shouldice technique?			
Often	Always	Never	Rarely
5. Do you leave the skin open after an appendectomy for a gangrenous appendicitis?			
Often	Always	Never	Rarely
6. Do you give antibiotic prophylaxis before laparoscopic cholycystectomy?			
Always	Selectively	Never	Rarely
7. If you want to achieve a better survival in a female patient with duct cell carcinoma in situ your preference is;			
a) Lumpectomy + whole breast irradiation, b) Lumpectomy +Axillary staging +whole breast irradiation c) Total mastectomy + Axillary clearance			
8. Do you use low dose (renal dose) dopamine for renal protection and to achieve urine output in septic shock?			
Often	Always	Never	Rarely
9. Which is a safer choice for the initial access to the abdominal cavity in laparoscopic surgery to avoid access related complications;			
1) Verres needle, **2)** Open Hasson method**, 3)** Direct trocar insertion, **4)** Optical trochar method, **5)** All have same safety			
10. Do you keep a patient with acute pancreatitis NPO to avoid complications?			
Often	Always	Never	Rarely

Table -3
Correct answers to the questions with their evidence

The Questions	Correct Answer	References
1) Do you perform mechanical bowel preparation before elective colonic resection	**Never or rarely**	**4-5**
2) Do you leave an abdominal drain after right hemicolectomy	**Never or rarely**	**6**
3) Do you permit enteral feeding on the first post-laparotomy day?	**Often or always**	**7**
4) Do you repair an inguinal hernia in	Never or	8-9

a 45-year-old man using the Shouldice technique?	rarely	
5) Do you leave the skin open after an appendectomy for gangrenous appendicitis?	Never or rarely	10
6) Do you give antibiotic prophylaxis before laparoscopic cholecystectomy	Selectively	11-13
7) If you want to achieve a better survival in a female patient with duct cell carcinoma in situ your preference is	Lumpectomy with whole breast irradiation	14-15
8) Do you use low dose (renal dose) dopamine for renal protection and to achieve urine output in septic shock	Never or rarely	16-17
9) Which is a safer choice for the initial access to the abdominal cavity in laparoscopic surgery to avoid access related complications	All are equal in safety	18-19
10) Do you keep a patient with acute pancreatitis NPO to avoid complications	Never or rarely	20

RESULTS

Out of 110 general surgeons who were given the questionnaire, 96 agreed to participate in the study/survey. Their demographic data is given in the Table-4.

Table-4
Demographic data of the participants

Mean Age	40 years
Holding FCPS +Final year trainees	81/96
Holding FRCS	7/96
Holding FCPS & FRCS	3/96
Holding MRCS	5/96
Place of practice-Teaching Hospital	63/96
Place of practice Non Teaching Hospital	33/96

Out of a total number of 960 (96x10) responses only 300 (31.25%) were in accordance with the scientific evidence. There were only two questions (Q 4 and Q 5) which were answered correctly by the majority of the participants. Rest of all the questions were answered wrongly by the majority of the participants. The details of the correct and wrong responses are given in the Table-5. There was no significant difference according to the age or activity settings (teaching hospital vs. non teaching) of the participants.

Table-5
Response distribution according to questions

Q. No	Correct Response	%	Wrong Response	%
1	12/96	12.5	84/96	87.5
2	30/96	31.25	66/96	68.75
3	24/96	25	72/96	75
4	72/96	75	24/96	25
5	66/96	68.75	30/96	31.25
6	18/96	18.75	78/96	81.25
7	24/96	25	72/96	75
8	36/96	37.5	60/96	62.5
9	3/96	3.125	93/96	96.88
10	15/96	15.63	81/96	84.38
Total responses	300/960	31.25	660/960	68.75
Teaching surgeons N=63	199/630	31.59%	431/630	68.41%
Non teaching surgeons N=33	101/330	30.61%	229/330	69.39%

DISCUSSION

Ideally, medical and surgical decision making should be based on sound, reliable and current scientific evidence. Historically surgeons have shown reluctance to accept evidence from randomized controlled trials that might alter their established way of practice. Our study is also pointing towards the same disappointing fact that most of the surgical practice, where a level 1 evidence is available, is actually in an evidence opposed way. Although the questionnaire of the study was specifically referring to the available evidence based knowledge without getting into the controversial issues in the general surgery, but the fact remains that only 31.25 % of the answers were in agreement with the scientific evidence. Even the more disappointing fact is that only two questions were answered correctly by a majority of the participating general surgeons. There was no statistical difference in the correct response rate among the teaching hospital or non teaching hospital based general surgeons (31.59% vs. 30.61%).This extremely low rate of correct responses confirms the gap between the “bench” (i.e. evidence based medicine) and the “bedside” (i.e. daily practice). This attitude of surgeons towards scientific evidence is actually consistent with the other studies conducted on the same issue. Wasey and co-workers have already demonstrated the overuse of drains, underuse of heparin and misuse of antibiotics (timing and duration) amongst the colorectal surgeons despite the availability

of solid scientific data[21]. A recent survey of peri-operative practices in five European countries showed wide variation in practices and a majority of them were at odds with the current best evidence[22]. In a survey amongst the members of the French society of Digestive Surgery (FSDS) it is reported that half of their routine practice goes against the best available evidence[23]. When the same FSDS questionnaire was distributed amongst the general surgery trainees and faculty at the University of South Florida, University of Chicago and to the surgical oncology fellows at the Memorial Sloan–Kettering Cancer Center, only 60% answers were correct and the percentage of correct answers did not differ significantly according to the institution or level of experience of the participants[24]. Various studied have highlighted the reason for this wide gap between the bench and the bedside practice. Accordingly some of the important reasons are the lack of understanding and appreciation of the importance of scientific knowledge, lack of availability, awareness, access, and personal time. Lack of skills to search and critically analyze the literature and the absence of regulations are the other important contributing factors [25]. In the West there is an increasing awareness and demand from the health authorities, various regulatory bodies, insurance companies and the patient societies to incorporate EBM in the daily practice to avoid unsafe medical practice and to improve the efficiency and quality of the health care services. Therefore the surgeons are also compelled to incorporate EBM in their decision making. In our country a great effort will be required to bring this culture in the medical field and according to Arjun only a handful idea of statistical definitions and terms is required to perform a biostatistical analysis[26].

CONCLUSION

EBM is a reality and an established way of practice. EBM when combined with clinical expertise and patient's preferences and values, it provides a safe, uniform, high quality, cost effective and optimal patient care. The current status of EBM among our general surgeons seems to be disappointing. A great effort is required to develop awareness and a positive attitude towards EBM and to remove its barriers. It necessitates the establishment of regulatory authorities that can expedite the compliance.

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