

God is in the Details. The Standardization of Surgical Procedures as a Condition to Quality

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Abstract

Operations based on traditions do not necessarily result with the best outcome. Two common operations, the vaginal hysterectomy and the caesarean section, were re-evaluated. All the unnecessary steps were omitted and the remaining were analysed as for their way of performance and se-

quence during the operation. Prospective randomized studies showed improved outcomes in both of the operations. All surgical procedures should be subjected to similar evidence-based studies.

Keywords: Hysterectomy, caesarean section, surgery

Introduction

In a recent retrospective cohort study the results of laparotomy and endoscopy for early-stage endometrial cancer were compared in one series. No significant differences concerning patients' survival were found⁽¹⁾. The authors concluded however, that the examined group was too small to reach definitive conclusions and suggested a larger randomized comparison of the both methods in order to validate these findings.

A meta-analysis is designed exactly for this purpose. Indeed, many of such analyses have been published to evaluate the results of different procedures like laparoscopic pyeloplasty⁽²⁾, thoracic malignancies⁽³⁾, laparoscopic-assisted approach in colorectal surgery⁽⁴⁾ and open versus laparoscopic appendectomies⁽⁵⁾. Such studies do not lack difficulties. In a meta-analysis concerning the operative treatment in cases of diverticulitis in young people, 15 publications were selected, but only 3 of them revealed the required relevant information concerning the optimal timing of the surgery in the course of disease⁽⁶⁾.

The comparison of surgical outcome of procedures performed in different countries and hospitals by different surgeons lack accuracy not just because of the variations in

the emphasized data collected, but also due to countless variations in the procedures itself, and needless to say, in the different hospital routines.

Since the beginning of the abdominal surgery by Ephraim McDowell in the 19th century⁽⁷⁾, different departments developed methods which were never subjected to evidence-based studies. These resulted frequently from ideas, which were introduced by sovereign and charismatic surgeons like Bilroth⁽⁸⁾, Wertheim⁽⁹⁾ and Schauta⁽¹⁰⁾. Whose methods were transferred from one generation to the next and were considered taboos. The Pfannenstiel incision which was introduced in 1897⁽¹¹⁾, was subjected to a comparative study with the time honoured longitudinal incision only 74 years after its introduction⁽¹²⁾.

Since the adoption of the evidence-based principles many methods are being re-evaluated. Single surgical steps which were executed for many years were found superfluous such as the suturing of the parietal peritoneum⁽¹³⁾. Each operation is composed of hundreds of movements. Each one of them does have its origin, way of performance and its sequence along the procedure⁽¹⁴⁾. In order to improve the surgical outcome each step in any operation should

be re-examined for its necessity, and should it found to be so, it should also be examined as for the right way to be performed. Surgical steps should be based on substantial evidence rather than on personal preferences.

The Vaginal Hysterectomy

In recent years endoscopic procedures replaced most of the laparotomies⁽¹⁵⁾. Many hysterectomies are done today endoscopically or laparoscopically-assisted^(16,17). But even among the advanced endoscopic procedures there are already certain variations, and local traditions are slowly being created. Robotic surgery is considered the most advanced endoscopic procedure, but even in robotic prostatectomy there are already different ways of performance⁽¹⁸⁻²⁰⁾, not just because of the usage of different numbers of ports but also due to different surgical approaches. The vaginal hysterectomy is a time honoured procedure, and with experience can replace abdominal hysterectomies as well as endoscopic procedures. Many ways of performing vaginal hysterectomies were described. In order to optimize this procedure six in common used methods were analysed. Each detail in these methods has been examined for its sequence in the operation as well as for the way of its perfor-

mance⁽¹⁴⁾. Only eleven of the steps repeated themselves in all the examined methods (the Chicago method, Falk, Joel-Cohen, Porges, von Theobald and Heaney⁽²¹⁻²⁶⁾). Two of these common steps, handling the Sacro-Uterine ligaments as an own step as well as the closure of the pelvic peritoneum, were considered superfluous. Thereafter, the way of performance of the remaining steps as well as their sequence during the procedure, has been questioned next to the needed instruments and suture material. The modified resulted procedure has been subjected to a prospective randomized study where it has been compared, in order to avoid bias, only to one of the six examined methods, the Heaney method. This study proved that using the Ten-Step method (leaving peritoneum open was considered as one step, in which the repair of enterecole or sacrofixation takes place) reduced the operation time as well as the need for painkillers⁽²⁷⁾.

The Caesarean Section

In order to allow the comparison of surgical outcome we have introduced the Misgav Ladach method⁽²⁸⁾, an optimized cesarean section, which is the only elective abdominal operation without any alternative at the time were the cesarean section rate is increasing worldwide⁽²⁹⁻³²⁾. Similar to the vaginal hysterectomy, this operation was subjected to examination and evaluation of each of its steps as compared to alternatives. The modified Joel-Cohen incision had benefits over the Pfannenstiel incision⁽³³⁾, the opening of the peritoneum by bi-digital stretching proved to be safer than with sharp instruments⁽³⁴⁾ and suturing the uterus with one layer, leaving peritoneum open was proved to result with better clinical outcome^(35,36). This operation which is now in use in many countries was introduced to nineteen obstetrical departments of the Helios Hospital Group after many peer-

viewed studies proved its advantages⁽³⁷⁻⁴⁰⁾. The implementation of this method at the Helios departments ranged between 68.9 and 100% with an average of 85.6% (January-March 2008). This enables for the first time comparison of quality between different surgeons and departments by measuring objective data such as the operation time, febrile morbidity and duration of required painkillers, with others, knowing that the surgical procedure itself is standard.

Conclusion

The optimization and standardization of surgical methods is expected to improve the postoperative outcome, but will also enable comparison between different departments and surgeons as well as meta-analyses when necessary.

We suggest therefore, that all surgical procedures should be re-examined in a similar way. ■

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