Modern considerations in perioperative care in gynaecology

Richard Edmondson

Abstract

Perioperative care is a critical but sometimes overlooked part of any surgical discipline. The combination of increasing numbers of patients with significant co morbidities associated with a move to office gynaecology leading to a decline in the number of major gynaecological procedures means there is a tendency for trainees and consultants to perceive perioperative care as complex and better left to intensivists and physicians. Nothing could be further from the truth and this article seeks to demystify many aspects of perioperative care and demonstrate that high quality care, delivered by the host surgical team will lead to the best outcomes for patients.

Keywords perioperative care; presurgical optimisation; surgical complications

Introduction

The art of surgery involves much more than just an operation. From the moment that a surgical procedure is first considered to the point of full rehabilitation a whole team should swing into action to ensure that the process is as smooth and complication free as possible. Complications will always occur when undertaking procedures as invasive as surgery but both the quantity and the severity of complications can be minimized, and the patient experience optimized, with the correct approach.

This article does not set out to be a textbook of perioperative care. Instead it seeks to highlight some philosophies that a perioperative team should consider when planning how to deliver best perioperative care.

These philosophies can be perhaps summarized as consistency, continuity and proactivity. Having consistent approaches to perioperative problems builds confidence within the team and allows most situations to be managed by that team. This is best achieved by having continuity of care. For instance, being seen by the same team each day in the immediate postoperative period allows early detection of complications which may not be obvious to a team seeing the patient for the first time. Finally, developing a pro-active approach, be this in discharge planning or the early recognition of complications, will pay huge dividends in optimizing outcomes.

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In general, to deliver these aims, care is best provided by one team; the host surgical team. Clearly other medical teams have a role, particularly in rarer situations, but most perioperative problems are common and predictable and can, and should, be managed by the surgical team.

Although the rest of this article is divided into preoperative, intraoperative and postoperative considerations it cannot be stressed enough that these should be seen as part of a continuous process of care.

Preoperative considerations

Discharge planning

It may seem odd to list discharge planning as the first item under preoperative considerations but the ultimate goal of any surgical procedure should be to prolong quality and quantity of life. Returning a patient to their usual place of residence as soon as possible is a critical part of attaining this goal. To achieve this means that discharge planning should commence at the first visit. If it is clear at this visit that discharge to usual place of care is unlikely to be achieved then the surgical team should seriously reconsider the role of surgery in the management of this patient.

Recognising co morbidities

The key to effectively managing co morbidities is to pick these up as early as possible. The earliest possible recognition of co morbidities allows their optimal management. Waiting until a pre op visit a few days before planned surgery to identify haematologic conditions which require a complex bridging plan or cardiac morbidity which requires optimisation will lead to inevitable delay. Given that most information required is known within primary care this should be the source of co morbidity data and all attempts for this to be included in the referral letter and then acted upon should be taken. Patients with significant co morbidities can then be fast tracked to relevant pre op clinics. There have been several attempts to develop scoring systems based, at least in part, on co morbidities to predict surgical outcomes. Although these have shown great promise in other surgical specialities they have not crossed over well into gynaecology and currently don't have a role in our specialty.

Managing co-morbidities

Common conditions are common. It is common, for instance to see patients who are on anticoagulants for a variety of indications and it is not difficult to generate a local protocol for how to manage this during the perioperative period, using available guidance. Such a protocol is then used by all members of the team and can be instituted easily, safely and consistently without the need to refer all patients to a haematologist. Similar protocols can, and should, be created for all common conditions including diabetes, and other common endocrine conditions.

For rarer conditions however it is important to develop links with interested physicians. Surgery imparts physiological stresses which can be extreme. Many physicians have little or no training in surgery and will not appreciate some of these changes. Asking "is this patient fit for surgery?" will therefore

often return a relatively unhelpful answer. Instead, phrasing the question as "is there anything that can be done to optimise this patient's condition?" is much more likely to be productive. However, to get the most from such an opinion the question "how could this patient's condition be managed throughout the operative period?" can only really be answered by a physician with an understanding of the stresses induced by surgery. Developing links with one or two physicians in each of the major disciplines allows a two way educational process to take place in which physicians gain an understanding of the effects of surgery whilst the surgeons get consistent opinions regarding co morbidity management. An obvious example of where this works well is orthogeriatrics where dedicated geriatricians manage the complex medical needs of these patients in close collaboration with the orthopaedic surgeons. Orthogeriatricians understand the stresses of the various orthopaedic procedures and can work with the surgeons to decide the optimal management of each patient.

Risk management

The three commonest complications of any surgery are always bleeding, infection and thromboembolic events. These risks can be mitigated by attention to ensuring blood products are used judiciously, prophylactic antibiotics are administered correctly and all preventive measures are employed to reduce the incidence of thromboembolic events. Although there is a natural tendency to focus on the use of low molecular weight heparin this is sometimes at the expense of concentrating on other important factors including early mobilisation and appropriate hydration.

Patient preparation

Patients should be encouraged to take an active role in both their prehabilitation and rehabilitation from surgery. For some patients attending a "surgery school" may be beneficial. This is an opportunity to provide information about the forthcoming procedure and there is also some evidence that psychological preparation for surgery results in improved outcomes. The major benefit however may be in providing an opportunity to maximise functional capacity by introducing techniques such as incentive spirometry and inspiratory muscle training. Finally, this is also a "teachable moment" in which lifestyle issues such as smoking cessation can be successfully addressed.

Intraoperative considerations

The list of intra operative factors which impact on final outcome is almost endless, often procedure specific, and certainly beyond the scope of this article, but some general principles apply to the intra operative setting, summarised as the development of close working between all members of the surgical and anaesthetic teams.

Efficiency in the operating theatre

Making best use of operating time is not only efficient in terms of patient throughput but it is also associated with better patient outcomes. Operating times greater than 5 hours are associated with delayed discharge and the risks of many complications including compartment syndrome, periorbital oedema, hypothermia and acidosis are all associated with long operating times. In most cases procedures are not lengthened by the actual surgery itself. Instead it is delays in getting the patient positioned correctly, delays in waiting for specific pieces of equipment to be brought, or lack of familiarity with complex equipment which often add significantly to the time that the patient is on the table. These delays can be minimised by an efficient team brief where equipment needs are identified and also by developing an efficient team who all have clearly defined roles at the transition times when patients are moved in and out of theatre.

Attention to detail

Monaghan prefaced the IXth edition of *Bonney's Operative Gynaecology* by saying: "Operations should flow with a style and a natural pace, rather like a well choreographed dance. There should be no great crises and the procedure should not be performed to the point of total exhaustion for the surgeon and theatre staff". These words still resonate. Critically appraising every procedure is crucial. Videoing procedures and using these as reflective tools is an excellent way to identify unnecessary movements or steps in a procedure. Unnecessary steps increase tissue manipulation which in turn increases tissue trauma. Meticulous preparation of pedicles prior to ligation improves haemostasis and reduces the likelihood of clamps slipping. Efficient attention to haemostasis improves surgical view and minimises overall blood loss. Even paying attention to surgeon comfort is important, a comfortable surgeon and assistant will be better able to focus on the procedure in hand. This is particularly pertinent in minimal access surgery.

Fluid balance

As a surgeon it is easy to forget about intra operative fluid balance but this should remain an issue shared between the surgeon and the anaesthetist. Keeping the anaesthetic team informed of current blood loss and the anticipated duration of the procedure allows them to plan their fluid management carefully. Underlying pathology needs to be considered here. The challenges of fluid balance in patients with pre-eclampsia are well described but this is an equally important issue in patients with advanced ovarian cancer who are often hypo albuminaemic and prone to third spacing of fluids. These challenges can be partly overcome with the use of trans oesophageal echo monitoring and goal directed therapy that continues onto the high dependency unit but highlight the need for specialist anaesthetic teams to manage these high risk groups of patients.

Pain relief

Choice of anaesthetic and postoperative pain strategies should be made after discussion between surgeon and anaesthetist, and is dependent upon type of incision, extent of surgery, estimated stay in hospital and place of immediate postoperative care.

Surgeons should take an active role in postoperative pain management with the use of local infiltration, placement of rectus sheath catheters etc.

Team working

For all the reasons mentioned above, we do not believe that it is appropriate for the anaesthetist to become involved with the patient for the first time on the morning of surgery. The complexity of many patients and the range of management strategies available mean that anaesthetists should be involved with patients from an early stage in the pathway. How this is delivered is subject to local agreement. Where a surgeon and anaesthetist work together each week it may be appropriate to discuss next week's cases at the end of this week's list. In our own unit we hold a weekly preoperative meeting at which the preoperative nurses present all the cases for the following week and all preoperative investigations can be reviewed by the surgical and anaesthetic teams. The introduction of this simple strategy has reduced our on the day cancellation rate and improved efficiency.

Postoperative considerations

Most patients should have an unremarkable postoperative recovery period but successful management of the postoperative period relies on continuity of care and a pro-active approach to both recovery and identification and management of complications. A general trend over recent years has been earlier mobilisation and earlier return to nutrition. Both of these initiatives have been associated with a reduced length of stay. The earlier problems can be identified and rectified the better. Trends are often a more reliable measure than static measurements but identifying these requires review of all parameters, this can be both facilitated and hindered by electronic recording. Although electronic alerts are useful they may not be triggered by minor deviations in recordings which are still significant to the trained eye. Results should therefore be reviewed manually rather than just relying on MEWS scores etc.

Daily ward rounds by the surgical team are mandatory and should not be delegated to others. Ward rounds should have a clear purpose, namely to promote the most rapid recovery from surgery possible. Ward rounds need to be systematic ensuring that all issues are covered for each patient including pain relief, fluid balance, nutrition, VTE prophylaxis, assessment and removal of drains, mobility, and discharge planning. The latter should be considered every day so that potential problems are identified and mitigated well before the patient is due to return home.

In general, most surgical complications are predictable and should be managed by the host team. Referral to other teams should be the exception and not the norm. For instance, postoperative atrial fibrillation is almost always related to an underlying surgical cause and can be managed by simple cardiac rate control and management of the underlying condition. Waiting for a cardiology opinion can delay this simple but effective management.

Recording of complications is an extremely important quality measure and should be done prospectively. This allows the rapid identification of trends such as an increase in wound infections which can then be dealt with accordingly. The Clavien Dindo system for recording surgical complications is very useful. It uses a simple system to record complications as grade I-V with an added suffix of d if the patient is left with a permanent disability as a result of the complication. It has gained wide acceptance in surgery and is rapidly becoming the standard method for recording postoperative outcomes.

The three pillars of perioperative care with some examples

Consistency	Continuity	Proactivity
Develop streamlined pathways for patients to navigate the peri operative pathway	Develop clinical teams that build trust by working together over long periods of time.	Identify co morbidities and instigate investigations as early as possible.
Develop guidelines for common co morbidities to ensure that patients are treated to uniform standards	Ensure that wherever possible the same clinical team reviews the patient every day	In the post op period, look for the earliest signs of complications and manage aggressively

Table 1

Enhanced Recovery Programmes

Many of the concepts outlined above have been incorporated into the Enhanced Recovery Programme. This programme commenced in colorectal surgery but has been subsequently extended to many different surgical settings and comprises a bundle of interventions including, but not limited to, preoperative nutrition, the use of minimal access surgery, the avoidance of surgical drains and other surgical manoeuvres, and early feeding in the postoperative period. The introduction of the programme to an institution is overseen by a team including surgeons and anaesthetists and a lead practitioner, often a specialised nurse. ERP has been successfully introduced for gynae surgery in many centres, but some have questioned whether at least some of the effects seen are related to the Hawthorne effect in which just the act of introducing reform leads to improvements in standards.

Areas for audit

Perioperative care is an ideal subject for clinical audits. Large numbers of patients having surgery mean audits can be carried out quickly and improvements in care rapidly instigated. The suggestion from the ERP evidence that at least some of the benefits from the introduction of ERP are related to the Hawthorne effect suggest that audit in itself may lead to improvements in care and therefore an audit programme should be seen as a high priority for any department. A multitude of topics are suitable for audit but the RCA has helpfully produced suggestions for audit.

Conclusions

In summary, perioperative care is a complex area which has often been relatively overlooked. However it is important for all involved to reflect upon the perioperative pathway and instigate change where necessary as, in many cases, simple interventions can profoundly affect outcomes. The keys to success remain the three pillars of consistency, continuity and proactivity (Table 1). ◆

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Practice points

- Good perioperative care is critical to delivering high quality surgical care
- It is best delivered by the host surgical team
- Regular, consistent, review of patients with proactive management of complications is essential
- All gynae departments should have processes to ensure that they prospectively record complications.