

SURGICAL UPDATE

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Enhanced Recovery after Surgery (ERAS)

BACKGROUND

The current standard perioperative care is largely based on surgical dogma and limited evidence. Perioperative care is fragmented with little interactions between various disciplines and role players. With increasing health care costs this fragmentation is often exacerbated. In addition patients are often inadequately prepared and consented with resulting suboptimal outcomes.

ERAS is a multidisciplinary team approach to perioperative patient care based on evidence based medicine and has an audit program to monitor compliance and outcome.

It has its origins in colorectal surgery but has expanded to include every surgical discipline and is now accepted as the standard of care in the NHI in the UK.

It has resulted in a significantly reduced risk of postoperative complications and hospital stay.

ERAS: PRE-OPERATIVELY

1. Counseling

In addition to the risk and complications patient are informed on what they can expect with specific reference to pain, mobilization, and feeding.

2. Exercise

Patients are encouraged to commence an exercise program pre-operatively and will be referred to a physiotherapist. Ideally they should stop smoking at least four weeks prior to surgery.

3. Nutrition

They will all have a baseline nutritional assessment and will be referred to a dietitian. Some patients are deemed high risk and will require pre operative nutritional support.

4. Bowel prep

Bowel prep is hardly ever used prior to



ERAS - Day 1 post operative

major abdominal surgery. It has not been shown to confer any benefit.

6. Nil Per Mouth

Patients are encouraged to eat up to six hours prior to major abdominal surgery and allowed clear fluids up to two hours before.

7. Carbo-loading

Most patients are given a carbohydrate supplement that they commence five days prior to surgery and the last dose is given two hours prior to surgery. This serves to dampen the catabolic response and also is an immune modulator.

ERAS: INTRA-OPERATIVELY

1. Fluid balance

The aim is goal directed fluid therapy to minimize fluid overload. Patients are often commenced on vasopressor support early as an adjunct to maintaining hemodynamic stability and thus avoiding excess intravenous fluid administration.

2. Pain management

Epidurals have been used as a routine in patients undergoing major abdominal surgery. Although it affords excellent pain control it can cause significant fluid shifts and is now used selectively.

With laparoscopic surgery epidurals are avoided as patients have less pain. This is usually well controlled on patient controlled analgesia (PCA).

3. Antibiotic prophylaxis

A key drive is to commence prophylaxis at least thirty minutes prior to the skin incision. The choice of antibiotic is standardized using both local and international guidelines.

4. Normothermia

Attention is paid to the theatre temperature and the use of warm fluids and warming blankets.

5.DVT

Patients are risk stratified and given prophylaxis accordingly. They are encouraged to mobilize early.

6. Nasogastric tubes

NGT generally avoided, as it is associated with a delay in gastro-intestinal functioning and a higher risk of atelectasis.

POST OPERATIVELY

1. Early Mobilization

Patients are mobilized out of bed from the first day with a target of at least six hours per day out of bed from day two.



Day 2 Post Operative: No ERAS(top) vs ERAS(bottom)

2.Early Feeding

The trend is to encourage early feeding. The timing is dependent largely on the type procedure. For elective colorectal cases patients are often on a full diet with 48 hours.

3. Catheters and drains

Catheters and drains are removed as early as possible. This reduces the risk of infection and allows early mobilization.

4. Audit of outcomes and compliance

It is imperative to monitor, collect and analyze data to ensure good and continued improved patient outcomes.

CONCERNS/DRAWBACKS

The concern with early discharge is the risk of a delayed diagnosis of an anastomotic leak. It is thus crucial that patients are informed of the possible signs and symptoms and have access to the surgical team 24/7 in the immediate postoperative period.

The number of pre-operative visits for the patient is increased. The patient ideally needs to see a physician/ intensivist, anesthetist , dietitian and physiotherapist pre- operatively. This is important to allow optimum planning of the perioperative care.

SUMMARY

ERAS is certainly is of significant benefit to the patient and has the potential to improve health care delivery and reduce total cost. However it is time consuming and requires a dedicated multi-disciplinary team and a paradigm shift in our approach to perioperative care.



DR BERNIE MAREE
 MBCHB (UFS), FCS (SA), MMED SURGERY (STELLENBOSCH)
GENERAL SURGEON

Dr Bernie Maree has joined Matley & Partners from the 1st March 2013. Bernie grew up in Bloemfontein and matriculated at Sentraal High School with full academic colours. He completed his undergraduate training at the University of the Free State in 2002 and did his internship at Edendale Complex in Pietermaritzburg. He did his Community Service at Frere Hospital, East London. Following Community Service he spent two years in the UK doing surgery, emergency medicine and several courses to broaden his medical experience.

Bernie obtained his Fellowship of the College of Surgeons at Stellenbosch University in October 2011. He was awarded the Sanofi-Aventis prize for his Masters



on The Eradication of Helicobacter Pylori and was invited to present at the international congress, Society of Academic & Research Surgery (SARS), in the UK in 2011. He held an appointment as a Consultant Surgeon at Tygerberg Hospital during 2012.

Bernie practises as a general surgeon but has specific interests in surgical gastroenterology and laparoscopic surgery. He also organized a laparoscopic inguinal hernia repair workshop to improve the teaching of fellow registrars at Tygerberg Hospital.

He is a keen sportsman, and was presented with provincial and national colours at university.

He particularly enjoys kite surfing, golf and running. He is happily married to Nicky Brice, a paediatrician.

FEDHEALTH PARTNERSHIP



Partners from Matley & Partners at the signing of a novel agreement negotiated with Fedhealth(Medscheme). The agreement will dramatically simplify and accelerate authorisation, patient management and remuneration pathways between Fedhealth and the practice. These cost saving efficiencies will translate directly into very significant financial savings to Fedhealth patients.

THYROID NODULES

Thyroid nodules are common. They can be found during the clinical examination, during investigations like neck ultrasound scan or incidentally on other imaging tests like MRI. Palpable thyroid nodules are present in 4% of population. Nonpalpable nodules identified on ultrasound are reported up to 50 % over the age of 50.

Thyroid nodules can be solitary or multiple, benign or malignant. The most common diagnoses are colloid nodules, cysts and thyroiditis (in 80 % of cases); benign follicular neoplasms (10-15 %); thyroid carcinoma (5%)

The main challenge in the management is to differentiate benign nodules from those that are malignant. Several key historical components help us to categorize nodules into intermediate and high risk groups. All patients with risk factors should be referred.

LABORATORY ANALYSIS

The single best test of function is the TSH level. A normal TSH indicates a biochemical euthyroid state. An abnormal TSH indicates dysfunction and should prompt measurement of T3 and T4. Low TSH is an indicator of clinical hyperthyroidism (T4 levels are high) or subclinical hyperthyroidism (T4 are normal) Patients with high TSH alternatively have subclinical or clinical hypothyroidism.

ULTRASOUND

Can be very useful to differentiate between cystic and solid nodules and the presence of cervical lymphadenopathy. Worrisome features include hypoechoic nodules, nodules with irregular borders, microcalcifications and an absent colloid halo sign.

FINE NEEDLE ASPIRATION

FNA has emerged as one of the best and most reliable tools for the evaluation of thyroid nodules. The cost is low and it is associated with few risks. FNA can diagnose many of the benign conditions, as well as papillary, medullary and anaplastic thyroid carcinoma. Papillary thyroid cancer is diagnosed with the classic so-called "Orphan Annie Eyes" changes. See diagram 1.

FNA is generally not recommended for the evaluation of hyperfunctioning thyroid nodules as the vast majority are benign. (99%)

ROLE OF DIAGNOSTIC SURGERY

Follicular and Hurtle cell carcinoma cannot

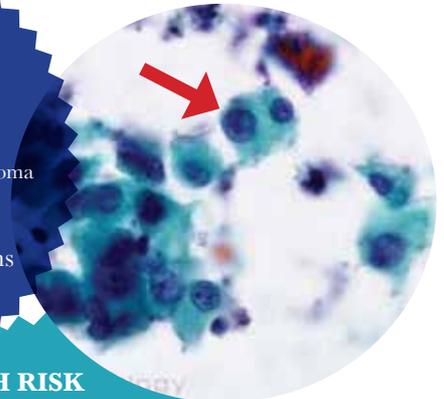
MODERATE RISK

- Age: <20 and > 60
- Male gender
- Radiation exposure (for example treatment of childhood illness like lymphoma or neuroblastoma)
- Nodule > 2 cm
- Compression symptoms like hoarseness

HIGH RISK

- Family history of Medullary thyroid Ca
- Rapid growth
- Firm, Hard nodule
- Fixation to adjacent structures of vocal cords
- Regional lymphadenopathy
- Distant metastases

Diagram 1



be diagnosed using FNA. The diagnosis of these carcinomas is dependent on histology rather than cytology. Follicular neoplasms are associated with a 20 % risk of malignancy, prompting the recommendation for a thyroid lobectomy.

MULTINODULAR GOITRE (MNG)

A nontoxic or multinodular goitre is defined as an enlargement of the thyroid gland containing follicles that are morphologically and functionally altered.

Indications for surgery would include

- Local discomfort, tightness or choking sensation
- Obstructive symptoms of the aerodigestive tree.
- Rapid enlargement. Goitres have an annual growth rate of about 20%
- Incidence of thyroid cancer is 5 to 10 %. (If the goitre's inferior margin is retrosternal clinical observation is difficult)

Thyroxine suppressor therapy has little role in the management of a nontoxic MNG, as proven in prospective clinical trials. Radioiodine can cause goitre reduction in up to 40 to 60 %, but complications include radiation thyroiditis.

Surgical management remains the mainstay of treatment for symptomatic, nontoxic goitre and is well tolerated. Median sternotomy is rarely indicated and complication rates remain low (<2%).



1 week post thyroidectomy

INCIDENTAL LIVER MASSES

With the progressive advances in imaging techniques, an ever-increasing number of liver lesions are identified. Frequently these are identified in patients undergoing imaging for a completely unrelated problem. Up to 10% of the population have some form of abnormality that can be visualized on one or more of the three basic imaging modalities used for the liver (Ultrasound, CT and MRI). Simple cysts are the most commonly identified. These are fairly easily distinguished from the solid lesions listed below as their cystic nature, smooth wall, and clear fluid content are easily identifiable on Ultrasound. It is only when they are less than 1cm in size that they can be more easily confused with solid lesions.

CAVERNOUS HAEMANGIOMA

When typical, they are readily distinguished from the others. They are typically hyper-echoic on USS, and fill in from the periphery with a cotton-



Left lobe hepatic adenoma for resection



Resected specimen cut open, showing intra-tumoral bleed



Contrast CT Scan of the liver showing hepatic adenoma

wool appearance on contrasted CT. They may be single or multiple. They are completely benign, with no risk of malignant conversion, are extremely unlikely to bleed, and very seldom cause symptoms.

FOCAL NODULAR HYPERPLASIA

The classical appearance shows a well-circumscribed lesion with a vascularised central scar. Atypical appearances may resemble carcinomas. They are typically solitary, tend not to grow, do not become malignant or bleed, and only require resection if symptomatic.

HEPATIC ADENOMA

These benign growths of hepatocytes are often quite difficult to distinguish from normal liver. They have a uniform appearance, and may be difficult to distinguish from hepatocellular carcinomas. Around 10% of them convert into malignancy, and approximately 10% bleed. Both of these complications tend to occur in larger lesions, so it is recommended to excise them if they are large. They are usually single, but can be multiple. This is the commonest benign indication for liver resection.

HEPATOCELLULAR CARCINOMA

HCC typically occurs in an abnormal

liver, with underlying cirrhosis most commonly related to hepatitis B or alcohol. Well-differentiated HCC occurs in normal liver, and can be extremely difficult to distinguish from hepatic adenoma. Resection is the only curative treatment, and thus ultimately all solid liver lesions are assessed with an eye on the possibility of HCC, with a view to resection. Alpha-feto-protein is specific for HCC if markedly elevated, but unfortunately the sensitivity is low, particularly in smaller resectable tumours.

METASTASES

Multiple hypo-echoic liver lesions are strongly suggestive of metastatic tumours. Some tumours, such as neuroendocrine tumours, can be hyper-echoic. While liver metastases usually indicate a terminal diagnosis, this is certainly not true of all malignancies. Colorectal cancer metastases can frequently be excised for cure, as can neuroendocrine tumours. Metastases from breast cancer, melanoma, or renal cell carcinoma can also be considered for resection in specific circumstances.

Some other points

1. Resist biopsies of liver lesions that might be potentially resectable. Biopsies risk spreading tumour that is otherwise constrained by the liver capsule. Fine needle cytology often gives equivocal results, and percutaneous core biopsies have a not insignificant complication rate.
2. The pattern of contrast uptake is a key component in distinguishing the various lesions on CT or MRI. Uncontrasted CT is usually unhelpful. Often multiple different imaging modalities are required. Ultrasound is usually the initial investigation.
3. Small lesions <1cm in size are extremely difficult to differentiate on imaging alone. The sensitivity for detection of lesions of this size is also low, although steadily improving as image quality improves with technology.