may be also improved, although it remains unclear whether better analgesia or the choice of analgesic technique is responsible for the beneficial effects.

The advantages of epidural analgesia (regardless of the epidural delivery technique i.e. continuous infusion or patient-controlled) when compared to intravenous systemic analgesia have been well demonstrated in post-thoracotomy patients - the most commonly studied model of thoracic "trauma". Paravertebral analgesia, confirmed to be equally analgesic-effective with thoracic epidural with fewer side effects, and superior to parenteral opioids, may be used in selective cases. There is generally a paucity of prospective randomised controlled studies to evaluate regional versus systemic analgesia in "true" thoracic trauma patients. Several retrospective studies have demonstrated better analgesia with thoracic epidural than intravenous patient-controlled analgesia, and shorter ITU stay in chest trauma patients with multiple rib fracture. In a recent randomised controlled study, continuous thoracic paravertebral analgesia proved to be as effective as continuous thoracic epidural for the pain management in patients with unilateral multiple rib fractures, and they were both associated with similar improvement in pulmonary function.

The potential risks associated with the use of local anaesthetics (toxicity from inadvertent intravascular injection or overdose) can be avoided by using less toxic local anaesthetics as a sole agent or in association with adjunctive analgesics (drugs that enhance the analgesic effect of the primary pain relieving drug, often in a synergistic way, and allow a reduction of the local anaesthetic dose to levels that decrease the risk of toxicity). A scrupulous technique and the immediate availability of the resuscitation equipment and drugs (intralipid) are paramount. A meticulous technique also minimizes some other risks of regional blockade such as nerve injury, pneumothorax, inadvertent epidural or subarachnoid spread, hematoma, and infection.

In conclusion, ongoing improvements in pain management after thoracic trauma include aggressive pain control from the initial point of evacuation and throughout the continuum of care in ITU and hospital wards. There is strong recognition that adequate pain management improves patient outcomes. Whether a specific drug, technique or combination is responsible is less clear, although some techniques are associated with better analgesia and less side effects than other. A multimodal approach is the best, and regional anaesthesia, where suitable, must be considered early in the management of pain control in thoracic trauma patients.

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END OF LIFE DECISIONS – PRACTICAL APPLICATIONS OF THE ETHICAL PRINCIPLES OF CONSENT AND PATIENT AUTONOMY

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Introduction

Prior to the mid 1840's, before the advent of anaesthesia, surgical procedures were limited and confined mainly to amputations for traumatic lower limb injuries and drainage of abscesses. With the advance of ether/chloroform anaesthesia, the scope and extent of elective surgery increased dramatically. The landmark US Schloendorff v Society of New York Hospitals case in 1914 stated the patient requirements to give consent and the consequences for the surgeon who operates without the patient's consent[1]. Judge J Cardozo ruled that ***" every human being of*** *adult years* ***and*** *sound mind* ***has the right to determine what shall be done with his own body; and a surgeon who performs an operation without the patient's consent commits an*** *assault* ***for which he is liable in*** *damages"* In the middle of the 20th century society changes had a major impact on the culture and practice of consent. The Nuremberg trials exposed the barbaric nature of Nazi experiments done in the name of medical science when inmates of concentration camps were immersed in iced water to determine how long they would live. This led to the Nuremberg Code adopted in 1947 and the subsequent World Medical Association's Geneva Declaration on consent. Subsequent Declarations included Helsinki (Research), Sydney (Organ Donation) and Tokyo (Torture).

Patient consent is one of the most complex and evolving considerations in clinical practice. Consent can come in different guises. It may be expressed or positively affirmed in writing or may be implied by the conduct or silence of the person whose

[1] Schloendorff v Society of New York Hospitals (1914) 211 NY 125. Landmark US case developed the use of patient's rights language in relation to the obligation to obtain patient consent for surgical procedures.

consent is required. There may be times when obtaining consent is impossible in emergency or extreme situations or when consent, although given by the patient, is based on incomplete or inaccurate information.

Three ingredients of consent

Must be given (or withheld) **voluntarily**

- An individual who has the **capacity**, in terms of age and mental competence to do so.
- Any decision relating to or withholding consent must be based on **sufficient relevant information.**

What sufficient relevant information should be provided to the patient is a particularly complex matter, which has evolved significantly in the last five decades. The argument for consent as an indispensable precursor to treatment is inherent in the concept of patient autonomy – the right of an individual to self-determination and body integrity.

Consent must be given by a patient before any medical procedure can be carried out on him/her.

The ethical and legal rationale behind this is to respect the patient's autonomy and his/her right to self-determination. The central idea of autonomy is that one's actions and decisions are one's own. Therefore the patient has the right to decide what happens to his/her own body.

There are 5 crucial elements in consent:

Disclosure: Patients must be given sufficient information, in a way that they can understand, to enable them to exercise their right to make informed decisions about their care. In legal terms this refers to the disclosure of all 'significant' risks, or 'substantial risks of grave adverse consequences'. This is commonly taken to mean risks of over 1-2%, though hard and fast rules are difficult to apply. In elective surgery the test for disclosure is to enquire only if there is any risk, however remote, of grave consequences involving pain for an appreciable time into the future. Statistical frequency is irrelevant.

Comprehension: Patient comprehension can be increased by avoidance of complex medical terminology where possible, use of lay language, common everyday analogies, numerical explanation of risk factors, pictorial representation of relevant procedures, large font on information leaflets etc. Where possible, time should be given to reflect on the information and questions must be answered.

Voluntariness: The consent process must not be controlled by factors that engineer the outcome, such as persuasion by family members.

Competence: It is presumed that every adult is competent to give consent on his/her own behalf. Sometimes competence can be affected by age or infirmity but this does not justify any impairment of human dignity or personal integrity. A functional approach should be taken to the assessment of an individual's competence. This approach assesses the individual's ability to make the relevant choice depending on their level of understanding and retention of the information, their ability to apply the information to their own personal circumstances and come to a decision.

Agreement: Consent given by the patient is the exercise of a choice, the giving of permission for the intervention. Patients should not feel that their consent is simply a formality, a signature on a page. The objective of consent is to give the patient the right to decide what is to happen to his/her body, including the right to decide whether or not to undergo any medical intervention even where a refusal may result in harm to themselves or in their own death.

Patient Information

The information which patients want or ought to know, before deciding whether to consent to treatment or an investigation, may include:

- details of the diagnosis, and prognosis, and the likely prognosis if the condition is left untreated;
- uncertainties about the diagnosis, including options for further investigation prior to treatment;
- options for treatment or management of the condition, including the option not to treat;
- the purpose of a proposed investigation or treatment; details of the procedures or therapies involved, including methods of pain relief; preparation for the procedure; and what the patient might experience during or after the procedure, including common and serious side effects;
- for each option, explanations of the likely benefits and the probabilities of success; discussion of any serious or frequently occurring risks, and of any lifestyle changes which may be caused by, or necessitated by, the treatment;
- advice about whether a proposed treatment is experimental;
- how and when the patient's condition and any side effects will be monitored or re-assessed;
- the name of the doctor who will have overall responsibility for the treatment and, where appropriate, names of the senior members of his or her team;
- whether doctors in training will be involved, and the extent to which students may be involved in an investigation or treatment;
- a reminder that patients can change their minds about a decision at any time;
- a reminder that patients have a right to seek a second opinion;
- where applicable, details of costs or charges which the patient may have to meet.

When providing information, patients' individual needs and priorities must be considered. For example, patients' beliefs, culture, occupation or other factors may have a bearing on the information they need in order to reach a decision. Patients should be asked whether they have understood the information and whether they would like more before making a decision.

Any questions the patient raises must be answered as fully as the patient wishes. Information necessary for decision making must not be withheld from a patient unless disclosure would cause the patient serious harm. In this context serious harm does not

mean the patient would become upset, or decide to refuse treatment.

Obtaining informed consent cannot be an isolated event. It involves a continuing dialogue keeping patients abreast of changes in their condition and the treatment or investigation proposed. Whenever possible, treatment options should be discussed at a time when the patient is best able to understand and retain the information.

Emergency situations:

In an emergency, where consent cannot be obtained, medical treatment may be provided to anyone who needs it, provided the treatment is limited to what is immediately necessary to save life or avoid significant deterioration in the patient's health.

INTRA - ABDOMINAL SEPSIS – EPIDEMIOLOGY AND CLINICAL PRESENTATION

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Severe Sepsis (acute organ dysfunction secondary to infection) and septic shock (severe sepsis plus hypotension not reversed with fluid resuscitation) are major healthcare problems, affecting millions of individuals around the world each year, killing one in four (and often more), and increasing in incidence [1].

- Incidence increased from 82 to 240/100,000 population
- Men > women 1.28 CI
- Reduced mortality rate 27 to 18%
- Highest mortality black men
- Decreased length of hospital stay
- Increased discharge to chronic care
- Predominance gram positive organism after 1987
- Fungal organism increase 207 %

Similar to major trauma, acute myocardial infarction or stroke, the speed and appropriateness of therapy administered in the initial hours after severe sepsis develops are likely to influence outcome. In 2004, an international group of experts in the diagnosis and management of infection and sepsis, representing 11 organizations, published the first internationally accepted guidelines that the bedside clinician could use to improve outcomes in severe sepsis and septic shock [2]. These guidelines represented phase II of the Surviving Sepsis Campaign (SSC) an international effort to increase awareness and improve outcomes in severe sepsis. Joined by additional organizations the group met again in 2006 and 2007 to update the guidelines document using a new evidence-based methodology system for assessing quality of evidence and strength of recommendations [3].

Intra-abdominal sepsis

These infections include secondary peritonitis, abdominal abscesses and cholangitis. The infection generally occurs because enteric microorganisms enter the peritoneal cavity through a defect in the wall of the intestine or other viscus as a result of obstruction, infarction, or direct trauma. Mixed aerobic and anaerobic flora can be recovered. The predominant aerobic isolates are Escherichia coli, and enterococci and the main anaerobic bacteria are Bacteroides fragillis, Peptostreptococcus. and clostridium species.

The treatment of abdominal infection includes surgical correction and drainage of pus and administration of antimicrobials effective against both the aerobic and anaerobic pathogens.

Pathophysiology

Intraperitoneal infections are caused by members of the gastrointestinal flora, mainly Escherichia coli, enterococcil, Klebsiella, Enterobacter, Proteus, Bacteroides, anaerobic coccil, Glostridia and Fusobacteria. The gram-negative aerobic bacteria exert their pathogenic potential mainly by endotoxin which acts by way of mediators, causing systemic septic response and, initially, the local response of the peritoneal cavity.

The anatomic aspect of peritonitis describes the division of the abdominal cavity into supracolic, infracolic and paracolic spaces, the lesser sac and the cul-d-sac of the pelvis. Endotoxin which is elaborated by bacteria activates the classical as well as the alternative complement pathway. It activates also the arachidonic acid metabolism, leading to the release of prostaglandins (PG) and leukotriens (LTC). The local host defense against a bacterial invasion includes the activation of cellular and humeral immunologic defense mechanism, in which the final product of the complement pathway (C5b-9), as well as chemoattractants C3a, C5a and C567 play a key role.

Peritoneal infections are truly synergistic infections. The most important synergistic mechanisms are protection against host defense and creation of a suitable environment by one member of the flora for another. Certain adjuvant substances, ie. bile, gastric juice, blood and necrotic tissue, play a role in the pathogenesis of peritonitis. The peritoneum deals either an infection in 3 ways: