PATIENT'S ATTITUDE, KNOWLEDGE AND CONCERNS REGARDING ANESTHESIA

Dissertation submitted in partial fulfillment of the

Requirement for the Degree of Master of Medicine

(ANESTHESIOLOGY)

By

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2013

ACKNOWLEDGEMENTS

ALHAMDHULILLAH. Praise be to Allah Subhanahu wa ta'ala, for his blessings, for giving me the opportunity to complete this dissertation. I wish to thank all patients for participating in this study. Their kindness and understanding will always be remembered.

My sincere thanks to Associate Professor Dr Saedah Ali, the cardiac anesthetist in the Hospital Universiti Sains Malaysia for being the supervisor of this study and giving her precious suggestions and guidance in conducting and completing this study.

Special appreciation goes to my co-supervisor, Dr. W Mohd Nazaruddin bin W Hassan for his supervision and constant support. This thesis would not have been possible without the support from the following people, Dr. Arifin Wan Nor lecturer in biostatistics (Biostatistics Unit, Hospital University Sains Malaysia) and my interviewer Staff Nurse Siti Hajar Mat Yasin, who assisted me with the patient interviews without fail.

I gratefully acknowledge the assistance from all the staff and lecturers in the Department of Anesthesiology and Intensive Care, Hospital Universiti Sains Malaysia. I would also like to extend my sincere gratitude to my colleagues and the staff of wards 4 Utara, 4 Selatan, 4 Timur Depan, 1 Utara, 2 Zamrud, 3 Utara, 3 Selatan, 2 Baiduri, 2 Akik and 2 Intan, for their help and assistance during the study.

Last but not the least, I would like to take the opportunity to thank my parents for their guidance. And my deepest love and gratitude to my husband and three children for their love, support and for the sacrifices which they made during the length of my study.

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ABBREVIATIONS

COAD	Chronic Obstructive Airway Disease
FEV1	Forced Expiratory Volume in 1 second
HDU	High Dependency Unit
IV	Intra Venous
ICU	Intensive Care Unit
KMO	Kaiser Meyer Olkin
PONV	Post Operative Nausea Vomiting
PACU	Post Anesthesia Care Unit
PONV	Post Operative Nausea Vomiting
PCA	Principle Component Analysis

ABSTRAK

Objektif

Menilai tahap kefahaman dan pengetahuan pesakit terhadap peranan dan tanggung --jawab doktor bius dan mengenalpasti tahap kebimbangan dan ketakutan pesakit sebelum pembedahan.

Kaedah

Satu kajian keratan rentas “cross-sectional” telah dilakukan melibatkan soalan temuramah ke atas pesakit dewasa dari tahun 2012 sehingga 2013. Satu borang soal selidik yang mengandungi 25 soalan telah digunakan untuk menilai tahap ketakutan, persepsi, dan kebimbangan pesakit berkaitan pembiusan. Pesakit memberikan jawapan mengikut 5 skala likert sebelum analisis statistik dilakukan diakhir kajian.

Keputusan

Sebanyak 103 orang pesakit telah mengambil bahagian didalam kajian soal selidik kali pertama. Daripada kajian tersebut 4 dimensi faktor utama telah dikenalpasti. Kajian soal selidik kedua telah diformulasi daripada kajian soal selidik pertama dan melibatkan 110 orang pesakit. Lebih 80% pesakit mengetahui tentang profesion doktor bius dan 60% daripada mereka juga turut mengetahui bidang tugas doktor bius.

Sebanyak 25.5% pesakit mengetahui peranan doktor bius dalam resusitasi pesakit namun hanya 7.3% pesakit mengetahui peranan aktif yang dimainkan doktor bius semasa pembedahan dilakukan seperti memberikan transfusi darah dan memantau tanda vital pesakit semasa pembedahan. Turut dikenalpasti, kebimbangan terbesar pesakit iaitu sebanyak 70.9% adalah berkaitan dengan kelewatan pembiusan dilakukan, di samping itu kegagalan membuat keputusan yang jelas juga merupakan masalah utama. Pesakit juga turut menilai doktor bius sebagai seorang yang berkelayakkan dan berpengalaman di dalam bidangnya.

Kesimpulan

Daripada kajian ini menunjukkan pesakit mempunyai respon yang baik walaupun mereka tidak mempunyai pengalaman pembedahan. Lawatan rutin sebelum pembedahan terbukti berkesan dalam pelbagai aspek. Kajian yang lebih menyeluruh terhadap ketakutan pesakit sebelum pembedahan dapat membantu mengurangkan tahap kebimbangan pesakit terhadap pembiusan. Doktor bius juga perlu menerangkan peranan utama yang dimainkan mereka semasa pembedahan seperti resusitasi yang dapat menyakinkan pesakit berkaitan pembiusan.

ABSTRACTS

PATIENT'S ATTITUDE, KNOWLEDGE AND CONCERNS REGARDING ANESTHESIA

Objectives: To assess patient's understanding and knowledge of the anesthesiologists roles and responsibilities and to identify peri-operative fears and concerns which they might have about anesthesia.

Method: This is a cross-sectional study involving an interviewer-administered questionnaire conducted on adult patients for a period of 12-months from 2012 to 2013. A validated questionnaire containing 25 questions designed to assess the patient's fears, perceptions and concerns was used. A 5-point Likert scale was used whereby patients rated their responses. A statistical analysis was conducted at the end.

Results: A total of 103 patients participated in the validated study and their responses scored. It was noted that there were factors loaded for 4 dimensions. A new questionnaire was formulated and 110 patients were questioned and responses validated. It was noted in descriptive analysis that majority of patients (above 80%) knew the anesthesiologists professions and above 60% knew their duties.

A minor 25.5% knew that anesthesiologists played a role in resuscitation, and even a smaller number (7.3%) that the anesthesiologist actively resuscitated the patient during operation, such as transfusing blood if needed and monitoring of the vital signs.

It was noted 70.9% patients were concerned of not being served analgesia on time. This was the biggest concern faced. Closely related were having an impairment of judgment and being incoherent. It was also noted that the patient regarded the anesthesiologist as being experienced and qualified. They were highly regarded.

Conclusion: In the present study many patients responded well, despite having no history of surgery. Routine pre-op visits have been proven to be immensely beneficial in many aspects. A more thorough address of concerns and pre-op fears could greatly dissuade any apprehension that the patients may have about anesthesia. It is noted that the anesthesiologist could explain her role and confide in the patient about anesthesia to help the transition from doubt. And explain that anesthesiologists play a larger role when it comes to resuscitation.

KEYWORDS: Knowledge , Attitude , Concerns , Anaesthesia.

Chapter 1

INTRODUCTION

Anesthesiology has made several advances over the past decades. These advances go hand in hand with the advancement in surgery. During last thirty years, role of anesthesiologist has extended not only inside operating theaters but also outside traditional operating room settings. Anesthesiologist plays a very critical role in intensive critical care units, trauma centers, pain clinics and as one of the first responders in the member of resuscitation team all over the world.

Amongst the developing countries there has been tremendous health care awareness over the last ten years. In Malaysia also people have begun having awareness with advances in medical services in the country. Despite which they have hardly any knowledge of the structure of medical service and the practices, specially related to operating room services and to anesthetic management. Patients' awareness of the duties of anesthesiologists in operating theaters may sometimes be very limited due to several factors pertaining to ideas conceived before coming in for the procedure. Many studies around the world proved lack of patient perception of the anesthesiologist's role in surgical practice. Most surgical patients do not know the role played by anesthetists in the perioperative period because of poor public knowledge of anesthesia as a medical discipline.

There is a lack of recognition of the anesthetists role in care of admitted patients both in and outside the operating room, by the medical community, administration and lay public. A large percentage of patients are under the misconception that anesthetists are not physicians. This figure varies from 11-50% in various studies reported from developed countries (Khan *et al*., 1999).

It is important to address the issue of knowledge, attitude and concerns of the surgical patients, which could help enhance the image of the specialty and to promote recruitment of future anesthetists. A part of the present study was therefore conducted to assess patients knowledge regarding anesthesia and anesthesiologists, as to discover if there were any differences in the responses or any difference in knowledge among patients.

Health care quality can be improved by eliciting patient preferences and customizing care to meet the needs of the patient. Anxiety is described as an unpleasant state of tension or uneasiness, which may be associated with abnormal hemodynamics as a consequence of parasympathetic, sympathetic and endocrine stimulation. A large proportion (60-80%) based on previous studies of patients experience substantial anxiety before surgery (Jlala *et al*., 2010) .

Having surgery is a stressful event in a patient's life. Many patients about to undergo surgery naturally experience anxiety. Various steps are taken in trying to reduce this anxiety.

Some of the most important of these measures include the preoperative visit by the anesthetist and the use of premedical drugs. Pre-operative anxiety has been found to increase post operative pain and the need for post-operative analgesia. It is a challenging concept in the preoperative care of patients. Preoperative anxiety is experienced by most of the patients awaiting elective surgery and is a widely expected response. Some degree of anxiety is natural for the patients while waiting for unpredicted, threatening circumstances of preoperative period specially for those patients undergoing the very first surgical procedure. Patients can perceive the day of operation as the most threatening day of their lives. Anxious patients require higher doses of anesthetic induction agents and higher postoperative analgesic drug (Jawaid *et al*., 2007).

The single most important reason for pre-medicating patients before surgery is to reduce anxiety which could cause all the signs of sympathetic stimulation and stress. The heart rate could rise with rise in systolic pressure with pale and sweaty skin and the veins could be constricted. There may be ventricular ectopic beats or ventricular fibrillation in extreme circumstances. Greater distress or anxiety prior to surgery is associated with a slower and more complicated postoperative recovery. The degree of anxiety depends on many factors such as age, gender, type of surgery, previous exposure to surgery and the patients susceptibility to handle stress. Common causes of patients' anxiety are fear of surgery, anesthesia, postoperative nausea or pain, intra-operative awareness, waiting for operation, loss of control during anesthesia and venous cannulation and complications e.g., pain and nausea, history of unpleasant experience of anesthetics or surgery or a predisposing personality.

Patients' expectations of the attitude and behavior of the staff toward them are another important factor that can affect their anxiety and their overall hospital experience. Anxious patients responds differently than the non- anxious patients to anesthesia. Even the insertion of an intravenous catheter in a preoperative anxious patient could be a difficult task. Previous good experiences of surgery or anesthetics gives a more relaxed patient. Greater distress or anxiety prior to surgery is associated with decreased patient satisfaction with preoperative care leading to a slower and more complicated postoperative recovery. This study is also aimed to identify common pre-operative fears and concerns about general anesthesia which may result in increased anxiety. There is a need to identify the the patients fears in order to reduce the incidence and intensity of anxiety amongst the patients awaiting surgery (Badner *et al*., 1990) .

This study is conducted to determine patients' attitude, knowledge of anesthesia and of the qualifications and role of anesthesiologists in patient care as well as the concerns of patients involving anesthesia.

Chapter 2

LITERATURE REVIEW

2.1 Role of Anesthesiologist in Patient Care .

2.1.1 Care of Surgical Patients

Anesthesiologist is the peri operative physician. Anesthesiologist provides medical care to all surgical patients throughout his or her surgical experience. This includes :

1. Preoperative care such as medically evaluating the patient before surgery and discussing with the primary or surgical team.
2. Intra operative care such as providing pain control and keeping stable hemodynamics along with supporting life functions during surgery.
3. Postoperative care such as supervising care after surgery and discharging the patient from the recovery unit.

2.1.2 Preoperative Evaluation

Anesthesiologists play a central role in the organization of pre-operative services that encompass much more than preparing the delivery of anesthesia.

The anesthesiologist has the skills necessary to assess, to optimize and to estimate risk and support patients deciding whether to proceed with surgery and anesthesia. Pre-operative anesthetic assessment minimizes risk for all patients while also identifying patients at particularly high risk. The preoperative anesthetic assessment clinic co-operate with primary care to achieve these aims.

Tests performed before surgery have to be within the limits recommended by national and local guidelines and protocols,Malaysian Society of Anesthesiologist Guideline for "Pre-anaesthetic assessment" (April 1998). Anesthetic departments have established clear pathways of care for unplanned admissions with surgeons, emergency departments, critical care and theater personnel. Special considerations must be given to children and young patients undergoing anesthesia and surgery. Operating sessions and the individual anesthetist's job plan are arranged to allow time for the anesthetist responsible for an individual's care to visit him/her pre-operatively at an appropriate time before surgery. In all but exceptional circumstances this should take place in a designated reception area, recovery room, dedicated clinic room or in the ward ensuring privacy and respecting patients' dignity, and not in the anesthetic room.

Patients usually have co morbidities that require careful assessment and co-ordination. Preparation for surgery could take weeks to achieve, and could potentially cause delay and cancellation of surgery if not done adequately. Pre-operative anesthetic assessment services decrease cancellations on the day of surgery, improves patient's experience of their hospital admission, anxiety related to surgery, and may reduce complication rates and mortality. The pre-operative visit could relieve anxiety and answer questions about both the anesthetic and surgical processes. Effective communication and a team approach are vital in pre-operative period. Complications and malpractice lawsuits are synonymous with poor preparation and failures in communication. Essential team members include anesthetists, surgeons, physicians and general practitioners.

Anesthetists ensure the safety of patients in the peri-operative period. Operating sessions are planned to allow time for the anesthetist responsible for an individual's care to visit him/her pre-operatively. This takes place before arrival in the anesthetic room in all but exceptional cases.

The responsible individual anesthetist makes sure that the pre-operative assessment is adequate and that the patient has sufficient information to make a reasoned decision. Pre-operative anesthetic assessment is an integral part of the surgical process and is included in the estimates of time required for the operating list.

The pre-operative assessment process identifies and addresses problems with individual patients, and provides the patient with appropriate information on the probable peri operative course. This allows the pre-operative visit to focus on the individual patient's needs and concerns.

As a part of the pre-operative visit the anesthetist :

- Establishes rapport with the patient and when relevant the patient’s family.
- Determine the adequacy of pre-operative assessment and preparation, includes arrangements for intra-operative and postoperative care.
- Confirms the plan and discuss anesthetic and postoperative care, including premedication, mode of anesthesia, intra operative and postoperative analgesia and anti-emetics.
- Ensures the patient is aware of any risks particular to that patient or associated with specific anesthetic procedures.
- Ensures the patient understands the nature of the operation.

Anesthesiologists plays a vital role in assessing a patient’s medical readiness for the surgery. They are unique in their advanced knowledge of both medical illnesses a patient undergoing surgery may suffer, as well as the effects on the body of the specific operation to be performed.

The anesthesiologist's preoperative evaluation may be very brief (such as in the case of a surgical emergency) or very prolonged (as in the case of a patient with multiple chronic medical problems who is to undergo an extensive operation). However in all cases, the anesthesiologist performs a focused history and physical examination, reviews available laboratory and special test results, and assesses the need for additional testing prior to proceeding with surgery. It is equally or more important that anesthesiologists fulfill their obligations professionally by showing the utmost professionalism in their practice. Having routine preoperative and postoperative visits and gaining confidence by effectively communicating with the patient regarding the procedures are some of basic professional requirements.

In UK a study reported only 5% of patients remembered being visited by an anesthesiologist preoperatively (Clifton PJ., 1984). There is also the opinion that the major reason for a preoperative visit by an anesthesiologist is that patients appreciate it, rather than it being medically necessary (Nightingale JJ *et al*., 1992). Many patients feel that they never met an anesthesiologist despite having surgery under anesthesia in the past which definitely reflects badly on the anesthetic field (Hariharan S., 2006). Routine peri operative visits have been proven to be of immense benefit in the countries such as the USA (Zvara DA *et al*., 1996). This is especially true with sub specialties such as regional anesthesia because this may allay the fears and misconceptions of the patient (Matthey *et al*., 2004). This may also leave an impact on the patient which may assist in improving the image of an anesthesiologist.

Knowledge of public about anesthesiologists is very limited although their role is crucial. We have to think why our role as anesthesiologists is not known to the public and ways to improve awareness of our critical role during and after surgery. There is a wide spread illiteracy amongst the public about the role of anesthesiologists inside and outside the operating room. Therefore, ample time should be given to educate patients about anesthesia and role of anesthesiologists during the pre-anesthetic examination.

2.1.3 Intra Operative Care

In the operating room, anesthesiologists are responsible for the medical management and anesthetic care of the patient throughout the duration of the surgery. The anesthesiologist would carefully match the anesthetic needs of each patient to that patient's medical condition, responses to anesthesia and the requirements of the surgery.

Anesthesiologists have important responsibilities outside of the operating room, but the majority of their vital work takes place in the operating theatre. Their main roles during surgery are to provide continuous medical assessment of the patients, to monitor and control the patients hemodynamics including the pulse rate and rhythm, breathing, blood pressure, body temperature, and body fluid balance. Also to control the patients pain and level of consciousness for the surgery to have a safe and successful outcome.

Most of the time, the patient will not even realize the anesthesiologist is providing such critical functions during surgery, assuring the patients have an internist anesthesiologists by their side making sure their health and safety is protected at all times.

In Austria, despite 93% of patients knowing that anesthesiologist is a doctor, only 55% of the patients believed that he or she is responsible for their safe recovery from anesthesia (Deusch *et al*., 1996) . The inadequate awareness regarding the importance of the function of an anesthesiologist in the intra operative period is reported probably due to this perception in Austria. The study from Saudi Arabia reported that only 16.5% of the patients knew that the anesthesiologists had a role during surgical intervention (Baaj *et al*., 2006).

2.1.4 The Post anesthesia Care Unit (PACU) or "Recovery Room"

After surgery, patients are transferred to the recovery or Post anesthesia Care Unit, where they are continuously monitored by a peri operative nurse until they emerge from the effects of anesthesia. Anesthesiologist consultation is immediately available whenever required. The PACU staff, is composed of highly trained nurses. They are charged with many vital tasks for the care of post-anesthesia and post-operative patients. These essential activities include monitoring of vital signs (heart rate, blood pressure, temperature and respiratory rate), managing post-operative pain, treating symptoms of post operative nausea vomiting (PONV), treating post anesthetic shivering, monitoring surgical site(s) for any excessive bleeding, discharge, swelling, hematoma, redness etc.

These common activities may often need supplementing with more intensive care or treatment. This may also require preparation and education for the use of Patient Controlled Analgesia (PCA) units, preparation and establishment of IV or epidural infusions, preparation and establishment of invasive monitoring such as arterial lines, central venous lines..,etc.

Evidence of recovery – which includes activity level, adequacy of breathing, circulation, level of consciousness and oxygen saturation – is continuously monitored. Pain control is optimized. The anesthesiologist decides when the patient has recovered enough to be sent home following daycare surgery or has been stabilized sufficiently to be moved to the respective wards or transferred to an intensive care unit.

2.1.5 Critical Care and Trauma Medicine

As an outgrowth of the PACU, critical care units are now established in all major medical facilities. Anesthesiologists are uniquely qualified to coordinate the care of patients in the these intensive care unit because of their extensive training in clinical physiology, pharmacology and resuscitation.

In the intensive care unit, the anesthesiologists direct the complete medical care for the sickest patients. The role of the anesthesiologist in this setting includes the providing of medical assessment and diagnosis, respiratory and cardiovascular support, and infection control.

Anesthesiologists also possesses the medical knowledge and technical expertise to deal with many emergency and trauma situations. Anesthesiologists provide airway management, cardiac and pulmonary resuscitation, advanced life support and pain control. Anesthesiologists they play an active role in stabilizing and preparing the patient for emergency surgery.

There are 2 types of ICU. The closed unit ICU where the Intensivist is responsible for clinical management and care for the patient admitted to the unit or transfer care to another consultant at the time of discharge. He/she may also invite consultants from other specialties for advice.

The Open Unit ICU where admitting consultant is responsible for the clinical management. All admitted patients will remain under the care of their admitting consultants throughout their ICU stay. They may also invite other consultants according to the patients need.

An ICU has a formal policy for admission and discharge.

Priority 1: Critically ill unstable patients with single system disorder and/or good reversibility of conditions and who require ventilator support and/or continuous vasoactive infusion, post-operative patients for stabilization and ventilation, acute respiratory failure from reversible cause e.g. bronchial asthma, COAD, patients with polytrauma and patients with acute obstetric complications e.g. eclampsia, postpartum haemorrhages.

Priority 2: is patients whose conditions require intensive monitoring e.g. patients with underlying heart, lung or renal diseases with acute exacerbation of the illness or who have undergone major surgery, patients with progressive paralysis of neuromuscular origin.

Priority 3: is critically ill patients whose illness severely reduces the likelihood of recovery and benefit from ICU treatment. E.g., patients with end stage malignancy and those with end stage heart or lung disease complicated by acute severe illness.

Discharge criteria:

Priority 1: Patients are discharged when their need for intensive treatment is no longer present.

Priority 2: Patients are discharged when their need for intensive monitoring no longer present.

Priority 3: Patients are discharged when the need for intensive treatment is no longer present, but may be discharged earlier if continue treatment is futile or request for ICU bed for a priority 1 or 2 patients is made.

Patients are transferred from Intensive Care Unit to general wards when the medical staffs decided that they no longer need such close observation and one to one care. General wards differ from ICU because of fewer nurses, lack equipment for short term emergencies management and is not covered by ICU specialist.

There is lack of knowledge throughout the world regarding anesthesiologist's role outside the operating room such as the intensive care unit (ICU) (Khan *et al*., 1999), (Hariharan *et al*., 2006), (Swinhoe *et al*., 1994). Even though ICUs in many countries are managed by anesthesiologists, the knowledge of patients regarding this role is still quite low. A study from UK showed that only 1% of the respondents knew anesthesiologist's role in ICU (Swinhoe *et al*., 1994) , while another study also reported 25% knew the anesthesiologist's involvement in ICU(Hennessy *et al*., 1993), and also the study from Trinidad showed that 19% knew this role (Hariharan *et al*., 2006).

2.1.6 High Dependency Units (HDU).

A HDU is specially staffed and equipped section of a hospital, usually close to ICU, where patients can be cared for more extensively than in a normal ward, but not to the point of intensive care. Patients may be admitted to HDU from ICU as a step down before transfer to the ward, or admitted directly from the Ward, Recovery Room or Emergency Department. Anesthesiologists also play a role of managing ventilated patients in HDU .

A HDU should have resources for immediate resuscitation and management of critically ill and should have equipment for management of short term emergencies e.g., the need for mechanical ventilation. All patients admitted in HDU should be referred to attending specialist preferably intensive care specialist for management, must have 24 hours access to intensive care services, pharmacy, pathology, operating theatres, imaging services, and appropriate access to physiotherapy and other allied services. HDU must have suitable infection control and isolation procedures, technical and support services. HDU staffing must include a qualified medical specialist, nurses in charge of HDU who have post-basic qualification in intensive care and the nursing staff to patient ratio of 1: 2.

2.1.7 Anesthesia Outside the Operating Room

Along with the advancement of medical technology, there has also been advancement for the need of anesthesiologists to become involved in caring for patients during uncomfortable or prolonged procedures in locations outside the traditional operating suite.

These procedures are radiological imaging, gastrointestinal endoscopy, placement and testing of cardiac pacemakers and defibrillators, lithotripsy and electroconvulsive therapy. In majority of institutions, anesthesiologists are available during cardiac catheterizations and angioplasty procedures should emergency airway management or resuscitation become necessary. It would be impossible to perform most of these tests on infants and young children without the use of anesthesia or various sedation techniques provided by an anesthesiologist.

In Finland, although 90% knew that anesthesiologist was a doctor and ranked them second after the surgeon, still 41% patients thought that anesthesiologists do not work in pain clinics, 36% did not know the role in Obstetric Departments, Department of Radiology (68%), ambulances (58%) and research work (46%) (Tohmo *et al*., 2003).

A study done in Sweden emphasized how an anesthesiologist should understand the 'four' ways of qualitative work: as a professional artist, good Samaritan, servant and coordinator which implying (1) conducting anesthesia and control the patient's vital functions;

(2) helping the patient, alleviate his/her pain and anxiety; (3) giving service to the whole hospital to facilitate the work of other doctors and nurses, caring for critically ill patients; and (4) organizing and directing the operation rooms to make the surgical list run smoothly (Larsson J *et al*., 2003). 'Anesthetist' is a wrong name given for the right doctor (Simini, 2000). "Referring to the specialty as "anesthesia" when anesthesiologists have widespread role in the acute care as well as pain relief, gives laymen a limited idea about the specialty", as an author points out (Simini, 2000). Many people in the general population as well as hospitals finds it difficult to even pronounce the word 'anesthetist'. Many institutions in the United States have changed their Department nomenclature to "Department of Perioperative Medicine".

However, as noted by another author, a name change just for the sake of it, may not have any impact and actually may have an adverse effect in practical terms (Strunin L., 2000).

Patient knowledge of anesthesiologists and their roles are poor in most countries of the world. Instead of creating despair, these findings should actually motivate anesthesiologists to enhance their image in the public. It has to be emphasized that anesthesiologists should expose themselves more to their patients, make use of the media and Internet and strive towards providing a high quality peri operative care which will help improving their image in the eyes of the public.

2.1.8 Pain Medicine

2.1.8.(a) Pain

Pain is defined as an unpleasant sensory and emotional experience associated with or without actual tissue damage. Pain sensation is described in many ways. The word unpleasant comprises a whole range of disagreeable feelings from being merely inconvenienced to misery, anxiety, anguish, depression and desperation to ultimate cure of suicide. Pain may be acute or chronic. Acute pain is a sharp pain of short duration with identified cause, often its localize in small area before spreading to neighboring areas. The intermediate or constant pain has different intensities. It last for longer periods.

It is difficult to treat chronic pain and needs professional expert care. Pain is produced by real or potential injury to body. Often its expressed in terms of injury, e.g., pain produced by fire is expressed as a burning sensation, pain produced by severe sustained contraction of skeletal muscles expressed as cramps.

Pain is unpleasant sensation but it has same proactive and beneficial or survival effects as well. Pain gives alarming signals about the existence of a problem or threat and creates the awareness of injury. Pain prevents further damage by causing reflex withdrawal of the body.

from source of injury. Pain leads the person to seek treatment to prevent the major damage. It also forces the person to rest or to minimize the activities thus enabling the rapid healing of the injured part.

2.1.8 (b) Acute Pain Management

Acute pain begins suddenly and is usually sharp in quality. It serves as a warning of disease or a threat to the body. Acute pain may be caused by many events or circumstances, such as surgery , fractures , dental procedure, burns or cuts and labour or childbirth. Acute pain may be mild in nature and last just a moment, or it may be severe in nature and last for weeks or months. In most cases, the acute pain does not last longer than six months and it disappears when the underlying cause of pain has been treated or has healed. However unrelieved acute pain may lead to chronic pain.

In addition to relief of a patient's pain during a surgical procedure, it is equally important for the patient's comfort and well-being to receive adequate pain relief in postoperative period. Anesthesiologists are responsible for ensuring that a patient's pain is under control before they are discharged from the PACU or recovery. An anesthesiologist may prescribe specific pain medications or perform specialized procedures to maximize patient comfort, which helps to minimize stress on patient's heart and blood pressure. The techniques that are best suited for each individual patient are chosen to allow for proper rest and faster healing.

Anesthesiologists are uniquely qualified to prescribe and administer drug therapies or perform special techniques for acute, chronic and cancer pain. Anesthesiologists have special training and vast experience in controlling pain during surgical procedures. The two most common areas in which anesthesiologists treat pain are Acute Pain management and Chronic Pain management.

2.1.8 (c) Chronic and Cancer Pain Management

In chronic pain, signals of pain remain active in the nervous system for weeks, months, or even years. This can take both physical and emotional toll on a person. The symptoms of chronic pain include mild to severe pain that does not go away, pain that may be described as shooting, burning, aching, or electrical, a feeling of discomfort, soreness, tightness, or stiffness.

This pain is not a symptom that exists alone. Other problems associated with pain include fatigue, sleeplessness, withdrawal from activity and increased need to rest, weakened immune system, changes in mood including hopelessness, fear, depression, irritability, anxiety, and stress and disability.

Chronic pain may originate with an initial trauma, an injury or infection, or there may be an ongoing cause of pain. However, some people suffer chronic pain in the absence of any past injury or evidence of any body damage.

The emotional toll of chronic pain can also make the pain worse. Anxiety, stress, depression, anger, and fatigue interact in complex ways with chronic pain and may decrease the body's production of the natural painkillers; moreover, such negative feelings may increase the level of substances that amplify sensations of pain, causing a vicious cycle of pain for the person. Even body's most basic defenses may be compromised. There is considerable evidence that the unrelenting pain can suppress the immune system. Because of the mind-body links associated with chronic pain, effective treatment requires addressing psychological and physical aspects of the condition.

Anesthesiologists are the vanguard of those who are developing new therapies for chronic pain syndromes and cancer related pain. Anesthesiologists who specialize in the treatment of chronic pain dedicate their practices exclusively to a multidisciplinary approach to pain medicine, working collaboratively with other medical specialists in a pain clinic.

2.1.8 (d) Role of Peri Operative Pain Management

Anesthesiologists play main role at providing peri operative pain relief. They are familiar with the pharmacology of analgesics and local anesthetics. They are aware of the short- and long-term effects of drugs given intra operatively, are knowledgeable about pain pathways and their interruption, and are skilled in techniques available to provide superior pain control. Management of postoperative pain by anesthesiologists can be professionally rewarding. Expressions of gratitude from the patients free from pain can contribute to feelings of self-esteem and job satisfaction. Additional contact with the patients, nurses, other physicians, and administrators helps to define anesthesiologists as valued consultants outside the operating room. Provision of peri operative analgesia is highly compatible with the emerging identity of anesthesiologists as "peri operative physicians."

Most anesthesiologists provide care to patients only during the perioperative period; however, there is poor knowledge and misconceptions regarding the function of the anesthesiologists even within this period. Patients in some of the countries seem to know the functions pertaining to anesthesia per se such as assessing fitness for surgery, monitoring patient, recovering patient and ensuring that patient is devoid of nausea/vomiting, pain and fitness for discharge (Hariharan *et al*., 2006). More specifically, anesthesiologist's role of monitoring patients during surgery has also been reported to be fairly well known in countries such as UK (Swinhoe *et al*., 1994), while in some other countries such as Saudi Arabia, this role is not clearly known to the patients(Baaj *et al*., 2006).

Notwithstanding these conflicting reports, it is a very common belief that the anesthesiologists put a patient to sleep, leaves the patient with the surgeon and go to another operating room to anesthetize the next patient simultaneously(Hariharan et al., 2006). This clearly shows the inadequacy of awareness regarding the importance of the function of an anesthesiologist in the intra operative period. A study from China has also reported that 'absence of anesthesiologist during surgery' is a major concern of the patients (Huang Y *et al*., 2002).

2.1.8 (e) Adverse Effects of Peri Operative Pain

Physiologic responses to injury and stress include following: pulmonary, cardiovascular, gastrointestinal, and urinary dysfunction; impairment of muscle metabolism and function; and neuroendocrine and metabolic changes as components of the stress response. Many of these responses can be eliminated or reduced with the currently available analgesic techniques.

Surgery involving upper abdomen or thorax produces a number of pulmonary changes including reduced vital capacity, tidal volume, residual volume, functional residual capacity, and forced 1 second expiratory volume (FEV1). Painful surgical incisions involving the upper abdomen result in a reflex-mediated increase in the tone in the abdominal muscles during expiration and a decrease in diaphragmatic function.