UNIVERSITY OF PORT HARCOURT

PAIN OF CHILDBIRTH: THE CURSE, THE RELIEF AND THE ANAESTHESIOLOGIST

INAUGURAL LECTURE

By

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DEDICATION

This lecture is dedicated to my Wife, Gloria and our two girls – Soala and Orafiri, whom I love very dearly.

To my late parents Elder Fyneface Sotonye-Ogan and Madam Elizabeth Erebulo Sotonye-Ogan for their uncompromising principles that charted the lives of their children.

To all the parturients who passed through my hands in the course of learning the art of painless labour and childbirth.

And finally, to God Almighty who brought me out of nothing to where I am today.

ACKNOWLEDGEMENTS

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My very special appreciation goes to my dear wife and friend, Gloria and, our two beautiful daughters - Soala and Orafiri who have been very prayerful and supportive during my academic exploits.

I am deeply and eternally grateful to my Elder sister, mother and mentor Prof. Christie Mato (Provost, College of Health Sciences) for inspiring me to attain great heights in life; and to my teacher and mentor, Prof. Nosa Edomwonyi (immediate past Head, Department of Anaesthesiology, UBTH, Benin) who stabilized my focus in anaesthesia. I remain grateful to you Ma. Both of you held my hands and taught me the secrets of the art.

I am also indebted to my teachers, Prof. Ezri Tiberiu (The immediate past Head of Anaesthesia and WFSA Program Director at Wolfson Medical Centre) and, Prof. Shmuel Evron (the Father of Obstetric Anaesthesia, Israel and the entire Palestine) who taught me the way through the maze of Obstetric Anaesthesia and Pain Management at the Department of Anaesthesiology and Pain Studies, Edith Wolfson Medical Centre, Halohamin - Holon, Israel.

The Acting Head, Dr. O.T. Alagbe-Briggs and Drs. Obembe, Johnson, Ebong, Ebirim, Job Otokwala, Tobin, Aggo, Obasuyi and the entire Staff of Anaesthesia Departments of University of Port Harcourt and University of Port Harcourt Teaching Hospital have

been wonderful and encouraging. Many of you really inspired me in my research works. God bless you all abundantly.

My special gratitude goes to my late parents, Elder and Mrs. Fyneface Sotonye-Ogan whose uncompromising principles charted a good path for me in life. I thank my beloved sisters Madonna, Sarah (Deceased), Bridget and Esther and, my family Head Elder Daso Ishmael Ogan and the entire Tamuno's family of Ogan Ama for all their sacrifices and faithfully supporting my endeavours.

I wish to thank my big brother and friend, Alabo (Dr.) Bernard Aprikaloku Aprioku Okome for being a well of wisdom to me. My gratitude also goes to my friend, Sir Alabo Dr. Nemi Wisdom Adoki for his wise counsel and support. I remember all my friends who also like me, had the challenges of coming from a poor home during our years of studentship – Dr. Charles OM Ngeribara, Dr. Kodjo Willie Soroh, Eng. Christian Minasia, Dr. BB Harry (Igbe), Dr. AA Dimoko, Dr. Ken Wariso and Mr. Sylvester Ed Ogan for the support we gave to each other during those difficult years of our lives. I wish to thank Mr. Ibitoroko S. Ogan and Mr. Tokubie Alaye-Ogan for being my friends and brothers. I must not fail to appreciate my friend, Mr. Sokeipirim Bobmanuel (Bobby) who has been a Minister of Encouragement to me. I thank you all for your kindness and support. I will not forget to mention my friend, ***small but mighty*** - Nsima Green and his family. You are all blessings to my family. I say thank you.

I am eternally indebted to all my teachers for their immeasurable contributions towards my academic success. These teachers include Prof. ND Briggs (Emeritus Professor), Profs Ndu Eke, Felicia Eke, Rollings Jamabo, Kanu EO Nkanginieme, Raphel Oruamabo, Anthony Okpani, Celestine T. John, JO Odia, Late Datubo-Brown, Blessing CD Didia, AE Ihekwaba, Arthur C Onwuchekwa, Shola Obianime, Nelson Brambayeifa, Arthur Nwafor, CO Anah, Alice Nte, Duncan Lolomari, MTB Membre, Bob Evans Yellowe, Dakaraju, Major Gen. (Dr.) Osuagwu (Rtd) (now Vice Chancellor,

University of Gitwe, Rwanda), HRM King (Dr.) SO Deinsah and many others for helping me to grow into an '**adult**' today.

Finally, and now unto Him who dwells and fills the entire Heavens and the Earth being able to do infinitely more than all I have ever asked or imagined, according to His power that is at work within me, to Him be all the glory and honour forever and ever. Amen.

THE INAUGURAL LECTURE

The Registrar shall rise, cap, invite the Vice-Chancellor to make his opening remarks and introduce the Lecturer.

The Lecturer shall remain standing during the Introduction. The Lecturer shall step on the rostrum, cap and deliver his Inaugural Lecture. After the lectures, he shall step towards the Vice-Chancellor, cap and deliver a copy of the Inaugural Lecture to the Vice-Chancellor and resume his seat. The Vice-Chancellor shall present the document to the Registrar.

CLOSING

The Registrar shall rise, cap and invite the Vice-Chancellor to make his Closing Remarks.

THE VICE-CHANCELLOR'S CLOSING REMARKS.

The Vice-Chancellor shall then rise, cap and make his Closing Remarks. The Congregation shall rise for the University of Port Harcourt Anthem and remain standing as the Academic [Honour] Procession retreats in the following order:

VICE CHANCELLOR
DEPUTY VICE-CHANCELLOR [ADMINISTRATION]
DEPUTY VICE-CHANCELLOR [ACADEMIC]
REGISTRAR
LECTURER
PROVOST, COLLEGE OF HEALTH SCIENCES
DEAN, SCHOOL OF GRADUATE STUDIES
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- Visiting Academics and Colleagues
- Esteemed Administrative Staff
- Captains of Industries
- Cherished Friends and Guests
- Unique Students of UNIPORT
- Members of the Press
- Distinguished Ladies and Gentlemen.

INTRODUCTION

Mr. Vice Chancellor Sir, history is being made today, not because this is the second inaugural lecture from the Department of Anaesthesiology, but this is the first time many in this audience will understand what mothers go through to deliver their babies and the efforts made to reduce the suffering these women go through during the process of childbirth. In this lecture also many seated here will come to realise that it is ***no longer sinful*** to alleviate the pain of childbirth, but rather it is the fundamental right of every pregnant woman to ask for pain relief during labour and childbirth. Importantly, this is the first time in our University an Obstetric Anaesthetist would deliver an inaugural lecture to tell a mixed audience the pain and relief associated with labour and delivery.

Mr. Vice Chancellor Sir, need I say that an inaugural lecture is a ***once in a lifetime opportunity*** given to a Professor to showcase his/her works to the university community and the general public. Still, some say that it is the payment of some form of debt the Inaugural Lecturer owes the community. Nonetheless, it is patent from both views that it is a gain-gain situation where both parties have a romance of knowledge with each **o**ther.

In the meantime, standing here before you all is a dream fulfilled; a dream that was dreamt about 29 years ago. Worthy of note is the fact that I am a product of a painful labour and delivery; I was admitted into The College 36 years ago and subsequently struggled through thick and thin to become a Surgeon and a Physician, seven years after. While still in the Medical school, I took up the challenge to study the art of ***Pain Relief***.

Surprisingly, till today many see pain as a ***sweetener or the icing*** on the cake of labour and childbirth. Mr. Vice Chancellor Sir, then, it is apropos that I have been empowered by your office to present to this audience the 154th inaugural lecture, titled **PAIN OF CHILDBIRTH: THE CURSE, THE RELIEF AND THE ANAESTHESIOLOGIST**. Distinguished audience, I want you to

take cognisance of the fact that the Anaesthetist is not just a PHYSICIAN, he is also a SURGEON. Consequently, throughout this lecture, I shall be talking as a SURGEON, PHYSICIAN or an ANAESTHETIST (ANAESTHESIOLOGIST) or better still PERIOPERATIVE PHYSICIAN as we are now frequently known and addressed.

Permit me to highlight the curse associated with labour and childbirth as recorded in the Holy Scriptures, represented as "**The Eve's Curse**". In Genesis Chapter 3: 16, while addressing the woman God said, ***"I will greatly multiply thy sorrow and thy conception; in sorrow thou shalt bring forth children; and thy desire shall be to thy husband, and he shall rule over thee"*** (**Holy Bible KJV**). Since then, labour and delivery have been associated with intense pain and distress. This, according to the Scriptures was a result of disobedience to the laid down principles of the Creator.
Congruently, the knowledge that pregnancy is associated with intense distress cannot be repudiated, a valid representation of the stipulated Eve's Curse. Likewise it cannot be disputed that this physiological state is supported by the massive release of the stress hormone (cortisol).

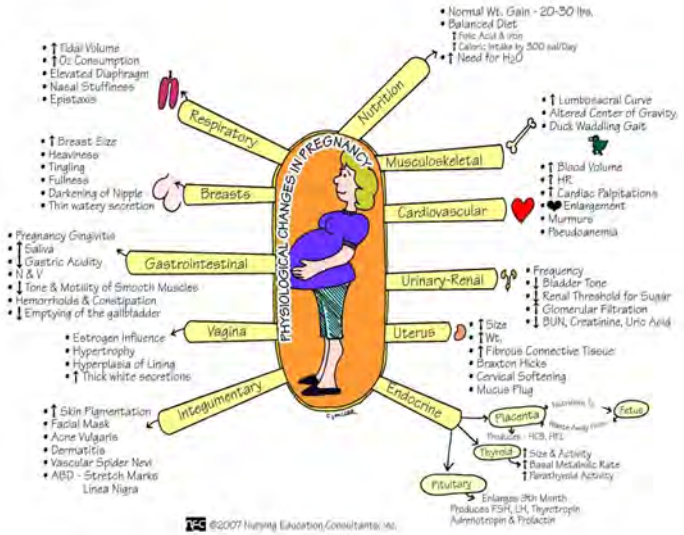
Even from the time of Hippocrates to Aristotle, many people throughout history, leaders of the Grecian School of Medicine, all wrote about childbirth but short of associating it with pain in their notes of normal births. However, following the close of 200 AD, animosity against women began to gain momentum. Then, pregnancy was linked to carnal sin and practitioners of medicine were not allowed to give attention to women in labour and delivery.
Over time, at the close of the 15th century the practice of midwifery began to gain popularity and acceptance. Notwithstanding this discovery, Genesis 3 verse 16 still generated a belief that God had cursed the process of labour and childbirth. This is evidenced in the assertion made by a reformer, (**Martin Luther, 1521**) who said, "***If women become tired, even die, it does not matter. Let them die in childbirth. That's their lot.***"
(https://en.wikiquote.org/wiki/Martin_Luther)

In the face of the advent of the Renaissance, there was still a belief that God wanted childbirth to be painful. Following this stance, the administration of chloroform was met with a stiff resistance. Hence, one New England Minister was quoted as saying, "***God would be deprived of the pleasure of their deep and earnest cries for help***". Correspondingly, women in the Christian world feared birth and the associative pain God had cursed it with (**https://christiantoday.com.au/news/does-the-bible-really-say-god-made-childbirth-painful.html**).

Slowly, birthing became institutionalized and women trudged off to the hospital to birth their babies. But even with that, the feeling persisted and today, despite the high margin of safety, women still fear the birthing process.

PHYSIOLOGICAL CHANGES IN PREGNANCY

Maternal physiological changes in pregnancy are the natural adaptation that a woman experiences during pregnancy so as to facilitate a better accommodation of the embryo or foetus. The body must alter its physiological and homeostatic functionality in pregnancy in order to enable the necessary provision for the foetus. Accordingly, some of these modifications have effects on normal biochemical values while others may represent symptoms of medical disease. Given that, then, it is crucial to distinguish between the conventional or usual physiological changes and disease pathology.



PAIN OF CHILDBIRTH

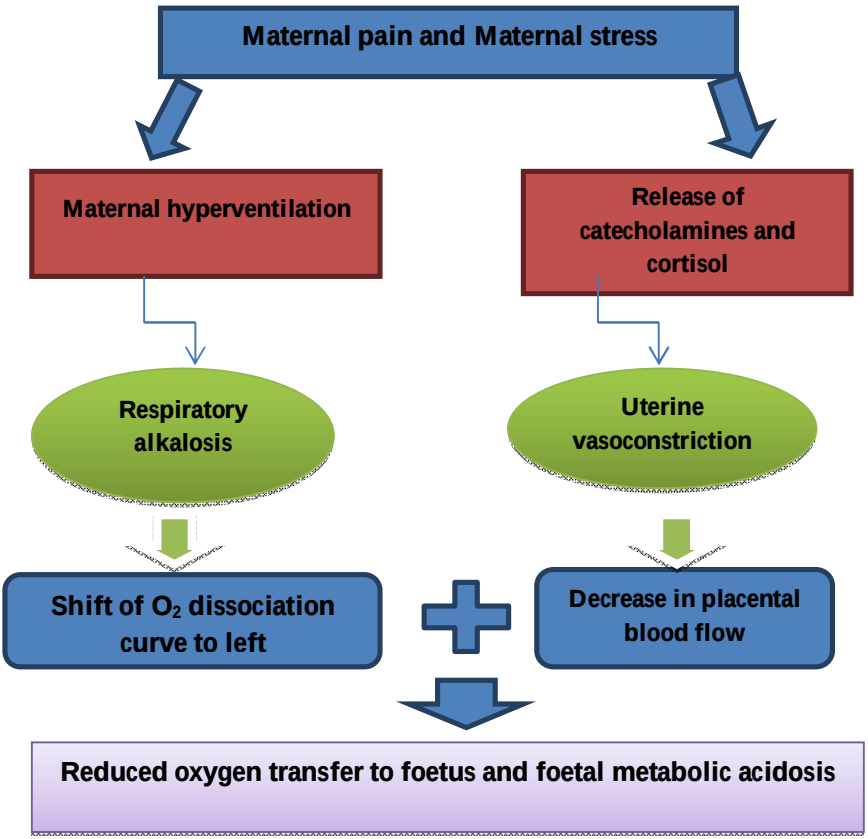
Largely, women have described the pain experienced during childbirth as severe and frequent (**Onah et al, 2007**); these parturients, particularly with respect to those in the low and low middle resource nations such as Nigeria have very limited options, or even none at all to assuage labour pain during childbirth.

THE PHYSIOLOGY OF LABOUR PAIN

Labour is a complex and subjective experience. On account of this, a parturient's perception of labour is influenced by several factors making each experience a unique one. However, research findings consistently evince that when compared to other painful life experiences, labour pain is rated higher on the pain rating scale (**Melzack, 1984**). Nevertheless, the retention of the pain associated with parturition is momentary and as a result, out of the parturients who undergo even acute pain in labour, 90% considered the experience satisfactory after three months (**Morgan et al, 1982**). This evanescent memory can be attributed to the positive upshot that frequently tailgates the end of labour.

However, besides the fact that labour pain is unpleasant for the mother, in point of fact, it can also have deleterious effects on the foetus.

EFFECT OF PAINFUL LABOUR ON MOTHER AND THE UNBORN



Labour being an active process of delivering a foetus, is a product of regular, painful uterine contraction that increases in frequency and intensity associated with a progressive dilatation of the cervical os. The pain associated with labour and delivery has two components: visceral and somatic.

The visceral labour pain, which can be instinctual or characterised by emotion, takes place during the early first stage and the second stage of labour pains. Each contraction transmits pressure to the cervix, thereby resulting into stretching, distension, and activating excitatory nocioceptive afferents. These afferent innervate the endocervix and lower segment from T_{10}-L_1.

Small unmyelinated 'C' fibres that journey with sympathetic fibres and go through the uterine, cervical, as well as the hypogastric nerve plexuses into the central sympathetic chain transmit visceral pain. The pain fibres from the sympathetic chain enter the white rami communicantes associated with T_{10} to L_1 spinal nerves and pass via their posterior nerve roots to synapse in the dorsal horn of the spinal cord. Some fibres cross over at the plane of the dorsal horn with extensive rostral and caudal extension consequently effecting poorly localised pain. Some of the chemical mediators involved are bradykinin, leukotrienes, prostaglandins, serotonin, substance P and lactic acid.

The pain of early labour is perceived in the lower abdomen, sacrum and back. This pain is implacable in nature; hence it is not always reactive to opioid drugs; howbeit, its reaction to opioids is contingent on the method of administration.

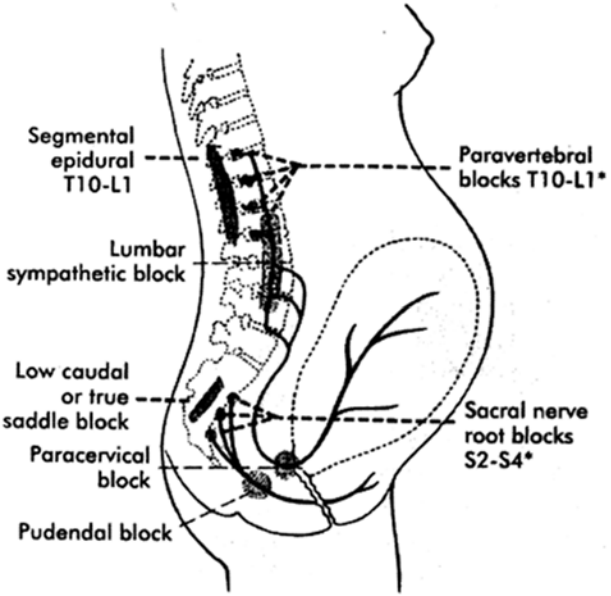
Fine, myelinated rapidly transmitting 'A delta' fibres transmit somatic pain. Transmission takes place through the pudendal nerves and perineal branches of the posterior cutaneous nerve of the thigh to S_2 - S_4 nerve roots. Likewise, somatic fibres from the cutaneous

branches of the ilio-inguinal and genitofemoral nerves transport afferent fibres to L_1 and L_2.

Somatic pain is experienced closer to delivery; it is sharp in character and directly confined to the vagina, rectum and perineum. It spreads out to the adjacent dermatomes T_{10} and L_1 and compared to visceral pain, is more impervious to opioid drugs.

All subsequent nerve impulses (visceral and somatic) circulate to dorsal horn cells, where they are worked on and transmitted to the brain by means of the spino-thalamic tract. Consequently, Transmission to the hypothalamic and limbic systems engenders the emotional and autonomic responses accompanying pain.

ANATOMY OF LABOUR PAIN



Labour pain has been identified as an emotional experience, with a corresponding psychological challenge for many parturients. As a matter of fact, a recent Cochrane review reported that women who had steady intra-partum assistance were less likely to have intra-

partum analgesia or to report dissatisfaction. In the meantime, other groups have posited that an underlying apprehensive attitude can generate into a higher uptake of epidural analgesia, in addition to influencing the analgesic effect of the epidural block. Withal, focus is currently on determining whether the Pain Catastrophizing Score has any influence on either labour outcome or analgesic uptake.

BIOCHEMICAL CHANGES

It is well known that an unrelieved pain is a stressor that can threaten homeostasis. The body's response to this stress involves bio-physiological changes that initially are useful and subsequently become potentially life threatening.

However, one of the biochemical changes in response to the unrelieved pain is the production of endogenous opioids known as encephalins and endorphins found in the central nervous system. These bind to opioid receptor sites, prevent the release of neurotransmitters such as substance P, and thereby inhibit the transmission of pain impulses. Unfortunately, these endogenous opioids degrade easily and cannot be considered as useful analgesics **(Pasero et al, 1999)**.

PHYSIOLOGICAL RESPONSE TO PAIN IN LABOUR

The sympathetic nervous system is involved in the immediate bodily response to emergencies, such as severe, acute pain. The initial effects of the sympathetic response allow survival of individual, for prolonged response activation can be detrimental (**Marieb, 2001**).

As aforementioned, the experience of pain in labour is subjective and differs from woman to woman (**NICE, 2014**), given this basic truth, every woman is expected to make a choice based on her predilection and individual conditions. For instance, a perusal of the low and middle-income countries (LMIC), ascertains that the most usual form of pain relief is the continual support of a companion during childbirth. Likewise, the provision of pain relief in labour is oftentimes disregarded as a result of the debate on its necessity,

benefits and drawbacks, pharmacological options, in particular (**Olayemi et al, 2003**). Subsequently, lack of knowledge and misconception with respect to the acceptance, safety and accessibility of pain relief options are likely reasons women in many LMIC such as Nigeria, do not receive adequate pain relief (**Olayemi et al, 2006**).

The research carried out by the Nigerian Demographic and Health Survey in 2008, showed that about 60% of expectant Nigerian mothers attended antenatal care, while only 35% of deliveries were recorded in health care facilities. In this context, pain relief during labour could be a critical incentive for increasing facility deliveries. However, only a few published studies have addressed the rampancy, causes, and seriousness of labour pains and the role of pain relief agents (**Olayemi et al 2005; Huntley et al, 2004**). The majority of childbirth occurs at home and is largely taken care of by unskilled providers. As a consequence, women who deliver at home do not usually benefit from any modern pain relief because of their strong belief in culture and religion that pain is acceptable during labour.

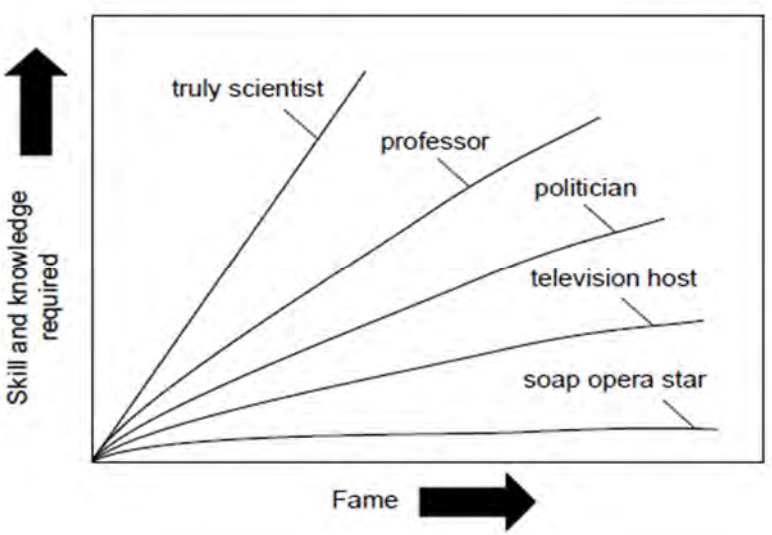
Labour pain presents an emotional experience and complex psychological challenge for many parturients (**Fyneface-Ogan 2009**). A study argued that women who had regular intra-partum aid were less likely to have intra-partum analgesia or to report dissatisfaction. It is pertinent to note the presence of a circadian variation in labour pain perception, and one group have shown lower mean daytime visual analogue pain score, which contrasted nocturnal scores.

Evidence also indicates that the standpoint of people regarding pain relief in labour is dependent on individual aspirations, as well as cultural factors and peer group influences. As a result, the capacity to cope with pain will likely attract a higher score in relevance than the level of pain experienced. To this end, a survey demonstrates that just 9% of the respondents examined wanted the best drug that can exterminate every trace of pain during parturition. Conversely,

the majority, a significant ratio of 67%, desired just the minutest quantity of drugs to keep the pain bearable (**Green et al, 1990**). From the foregoing it is palpable that the parturients can only be satisfied with pain relief if they felt they had been in control during their labour. Though childbirth is a fulfilling experience, yet it can be a very painful experience for women. Ipso facto, in many high-income countries (HIC), pain relief in labour is regarded as a requisite of intra-partum care; additionally every woman has the prerogative to choose as well as given access to the diverse pain relief options for labour and delivery. Prof. Richard Feynman, a Physics Nobel laureate once said that a research process must be based on the scientific culture. Scientific culture would not exist if there is no scientific integrity, and scientific integrity will not be formed if there is no good research practice. Accordingly, there are several principles in good research practices:

- Good research practice requires proper supervision and training.
- Good research practice encourages openness and dissemination of results.
- Good research practice requires proper maintaining and storing of records.
- Good research practice requires high quality outputs and good publication practice.

Based on these considerations, one can rightly argue that in comparison with other vocations, such as a television host or a Nollywood star, attaining the status of a famous scientist is indeed a very difficult task.



METHODS OF PAIN RELIEF IN LABOUR

The relief of pain during childbirth can be non-pharmacological and pharmacological (**Fyneface-Ogan, 2009**). However, the ideal pain relief method must be timely, safe, efficient, effective, equitable, the woman-centred and ideally should not interfere with labour or the mobility of the labouring women (**WHO, 2017**).

On the one hand, non-pharmacological options incorporate the constant support of a companion, directed breathing and relaxation techniques, massage, labouring in water and the utilisation of transcutaneous electrical nerve stimulation (TENS) in early labour. On the other, pharmacological options comprise oral tablets (paracetamol, codeine or tramadol), inhalation analgesia (Entonox® - a 50:50 mixtures of oxygen and nitrous oxide), intravenous and intramuscular opioids (pethidine or diamorphine) and various types of local (para-cervical or pudendal block) and regional analgesia (epidural or spinal analgesia).

NON-PHARMACOLOGIC METHOD

Numerous non-pharmacologic methods of pain relief can be adopted during labour. Even though, the experience of labour pain is a subjective one as earlier stated, yet it is multifaceted in nature and manifestation; in view of this, it is not possible to adapt just one particular technique or an amalgam of interventions to help all women, or even the same woman throughout the labour experience. There is a relational association between pain and suffering; both coexist. Despite that, it is still possible for a person to suffer without any attendant pain; conversely, a person can also experience pain without suffering. Quite differently, it is equally realistic for an individual to have pain concurring with satisfaction, enjoyment, and empowerment. Still, aloneness, lack of knowledge, hostile, unresponsive and tactless treatments during childbirth, along with unresolved past psychological or physical distress, increase the chance that the woman will suffer. Subsequently, the physical feeling of pain is acutely magnified and often eventuates in suffering when it coexists with these negative psychological influences (**Simkin and Klaus, 2004**).

Likewise, psychological preparation for the non-pharmacological method is very significant. Its essentialness draws on the fact that there is a marked correlation between pain and anxiety. However, diverse examinations have proven that people's confidence is far greater after being schooled on childbirth, which in turn has given rise to a notable decrease of pain perception by expectant mothers, even during parturition, which consequently has also resulted in the decrease of medication, including the employment of analgesia during labour (**Lowe, 1996**).

The non-pharmacologic approach to pain covers both the physical sensations of pain and the prevention of suffering by improving the psycho-emotional and spiritual components of care. Under the non-pharmacologic approach, pain is regarded as a secondary effect, a necessarily and attendant side effect of a normal process of labour; and to that extent it is not recognised as a sign of damage, injury, or abnormality. Consequentially, rather than endeavouring to ensure

the disappearance of the pain , in contrast the caregivers assist the woman to manage it, that is, to get to grips with it, build her self-confidence, coupled with the maintenance of sense of mastery, as well as her well-being. In actuality, these caregivers up the level of a woman's confidence in the face of labour pain as a distinguishing mark representing her experience to cope with labour (**Lowe, 2002**). To that effect, reassurance, guidance, encouragement, and unconditional acceptance of her coping style are applied. Additionally, the woman and her partner or support persons are guided and assisted in the utilisation of self-comforting techniques and non-pharmacologic methods meant to ease pain, coupled with the enhancement of labour progress. On account of this kind of care, women therefore believe that they successfully manage the pain and the stress of labour. On account of that, they submitted that they were able to transcend their pain and experience a sense of strength and profound psychological and spiritual comfort during labour (**Lowe, 2002**).

Continuous Labour Support

The term "continuous labour support" refers to non-medical care of the labouring woman throughout labour and birth by a trained person. Labour support is not only concerned with continuous presence, but also emotional support which trifurcates into reassurance, encouragement, and guidance. Labour support also captures physical comforting, like giving the needed assistance in carrying out coping techniques, use of touch, massage, heat and cold, hydrotherapy, positioning, and movement. Also included are information and guidance for the woman and her partner, as well as the facilitation of communication that is, assisting the woman to express her needs and wishes; nonmedical information and advice, anticipatory guidance, and explanations of procedures inclusive.

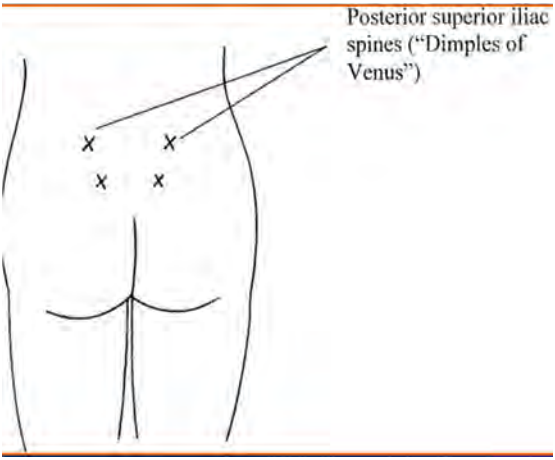
Baths in Childbirth

During childbirth, immersion in warm water deep enough to cover the woman's abdomen is used to enhance relaxation, lessen labour pain, and promote labour progress. Baths are becoming a popular option in many countries, except in Nigeria. Usually, women are

expected to remain in the bath for a few minutes to a few hours during the first stage of labour.

Intradermal Water Blocks

Intradermal water blocks, also referred to as intracutaneous sterile water injections, reduce low back pain during labour. The block consists of 4 intradermal injections of 0.05- to 0.1-ml sterile water (using a 1-ml syringe with a 25-gauge needle) to form 4 small blebs, 1 over each posterior superior iliac spine and 2 others placed 3 cm below and 1 cm medial to each of the first sites. The studies demonstrated that intradermal water blocks reduce severe low back pain in most labouring women without any identified side effects on the foetus or mother, except for the transient, though extreme pain, with administration.



Touch and Massage

In this context, touching is a positive affective expression through a light press or stroke, so when you touch another person with a light pressing stroke you are communicating positive articulacy, to wit, you are telling the person that you care, you are concerned about her situation. Ergo, touching is an expression of compassion, love, support and assurance. Equivalently, massage is the therapeutic manipulation of the body through systematic stroking or kneading so as to effect a beneficial physiological response, such as pain

reduction and to relieve tension. Similarly, Tappan & Benjamin (1998) describe massage as a deliberate and methodical handling of the soft tissues of the body in order to augment health and healing. Accordingly, touch and massage are clinical tools used during labour to enhance relaxation and reduce pain and suffering.

Acupuncture and Acupressure (Shiatsu)

Acupuncture is an essential and ancient substance of traditional Chinese medicine, which is fast becoming integrated with conventional medicine worldwide. Its functionality covers the initiation and control or acceleration of physiologic functions, which enables acupuncture to correct malfunctioning organ, heal illnesses, besides relieving discomforting symptoms via insertion of fine needles into the skin at a combination of specific points along meridians (channels of energy, called "Qi," pronounced "chee") in the body, followed by rotation, heating, or electrical stimulation (electro-acupuncture) of the needles.

Additionally, acupuncture offers an effective alternative to pharmacologic pain relief. Equally, it can be utile for women who want to circumvent or delay pain medications or in a situation where pain medications are not obtainable. The application of acupuncture recorded high satisfaction, likewise in the control groups. Additionally, because extra surveillance of the foetus and assistance from anaesthesiologists are not needed, care of the labouring woman is simpler and less expensive with acupuncture than neuraxial blocks.

Hypnosis

Right from the early 19th century, hypnosis has been adopted as a means of reducing labour pain. Hypnosis is "a state of deep physical relaxation with an alert mind producing alpha waves, and it is in this state that critical faculties are suspended and the subconscious mind can be more readily accessed" (**Mantle, 2000**). While in this state, the induced person is more pliable to suggestions. In view if this, hypnosis for childbirth is almost always self-hypnosis; that is to say,

the hypnotherapist educates the woman to stimulate the hypnotic state in her during labour.

Transcutaneous Electrical Nerve Stimulation

Transcutaneous electrical nerve stimulation (TENS) is the transmission of low-voltage electrical impulses from a hand-held battery-powered generator to the skin via surface electrodes.

TENS was introduced into maternity care in Scandinavia in the 1970s. Today, it is widely used and rated highly by users in the developed world except in the United States.

Music and Pain of Childbirth

Audio-analgesia is the employment of aural induction, such as music, white noise, or environmental sounds to alleviate pain perception. Its usage is widely known for lessening pain during childbirth, post-surgery, and for other painful situations. One study showed that the use of music therapy during labour decreased pain perception, increased the satisfaction with childbirth, postpartum anxiety, and reduced early postpartum depression rate. Music

therapy can be clinically recommended as an alternative, safe, easy and enjoyable nonpharmacological method of pain relief in labour and an overall postpartum well-being (**Simavli et al, 2014**). However, all other researches, have experienced undersized sample sizes, plus inadequate controls, or lack of distinct distinction between control and experimental groups (**DiFranco, 2000**). Though, it has not been demonstrably articulated that audio-analgesia has any of the benefits claimed for its application, nonetheless, there are no validated disadvantages to employing the use of music or sound during labour.

Relaxation and Breathing

Most childbirth education classes and most literatures on it give relaxation methods, in conjunction with various rhythmic breathing patterns meant to equipoise and advance relaxation or to provide distraction from labour pain.

Take home notes on the use of non-pharmacologic pain relief methods during childbirth.

All the techniques share several common properties:

- Exhibit capacity to reduce pain sensations.
- Can be safely synthesised or utilised consecutively in order to augment their total effect.
- The techniques can be solely exploited or function as an additional medication to pain relief.
- They are moderately cheap and essentially most are not difficult to use.
- The burden of pain control is shared by the parturient, her labour support and caregivers. .
- The woman is less dependent, and, in turn, the caregivers are able to assume more of a supportive and assistive role and less of a directive role during her labour.
- Encourages active participation by the woman in the birthing process.

The woman is allowed to choose the self-comfort measures she desires, in addition to using her own abilities, as well as her support team during birthing process.

Through the application of these techniques, the labouring woman is either enabled to maintain or restore a sense of control. Additionally, encouragement, support, and unconditional acceptance of her coping style from her caregivers and supporters increase her self-confidence. Therefore, it cannot be gainsaid that a parturient who is self-assured in the utilisations of her own resources will inevitably cope better with labour, and consequently inspires a feeling of comfort, safety, coupled with a good comprehension and control of labour pains, and less likelihood of suffering.

They tend to be rated highly in terms of satisfaction and a desire to repeat them in a future labour. Even though their pain-relieving capability is modest or short-lived, they contribute positively to the psycho-emotional, spiritual, social, and cultural aspects of her birth experience. When all aspects of the labour and birth are considered and respected, the likelihood of the woman suffering may significantly decrease.

Being a very agonizing moment for every parturient, by whatever means the pain of child birth should be relieved and sustained throughout the birthing process.

THE RELIEF – MY SCIENTIFIC CONTRIBUTIONS TO KNOWLEDGE

Mr VC Sir, St. John's Gospel (KJV) 19:30, states that, "*When Jesus therefore had received the vinegar, he said,* "**It is finished**": *and he bowed his head, and gave up the ghost.*" Consequently, that avowal by Jesus marked the end of the curse on childbirth and hence, the beginning of advancements of knowledge in science and technology.

A child can be born either by a spontaneous vaginal delivery or through a Caesarean section. Both of these methods are very painful and require a profound pharmacological form of pain relief

Pharmacologic method of pain relief during childbirth

Severe unbearable pain is frequently a product of labour and childbirth for many women. As postulated by the American College of Obstetricians and Gynaecologists (ACOG), aside the labour pain experienced by women, no other scenario should be considered appropriate for them to go through untreated severe pain while undergoing care under a physician, amenable to safe intervention. In the absence of a medical contraindication, maternal request is a sufficient medical indication for pain relief during labour. On these grounds, pain management should be provided whenever it is medically indicated (**Goetzl, 2002**).

Eugen Bogdan Aburel first described the use of a catheter placed into the caudal epidural space in 1931 (**Curelaru & Sandu, 1982**). Aburel introduced a needle at the caudal level, then a soft catheter was advanced through the needle, afterward the needle was removed, leaving the catheter intact. As a result, it enabled repeated injections all through the course of labour without the need to repeat the modus operandi. Since then, the use of a modified form of this technique has become increasingly popular for pain relief during childbirth.

In Nigeria, there is a dearth of data on the overall patterns of pain management during childbirth; moreover they are limited to the investigations that peruse service provision rather than scrutinising genuine patient demand (**Olayemi et al, 2003; Akpan et al, 2003**). Furthermore, anecdotal experience also authenticates the fact that the rate of request for epidural analgesia in labour is low in Nigeria.
We enrolled 50 American Society of Anesthesiologists Class I and II consecutive multiparous women in labour requesting epidural pain relief and to investigate their views and outcome (**Fyneface-Ogan, Mato & Anya, 2009**). After providing description of the options of pain relief available to them, they were allocated into two groups according to their request, which was either to receive parenteral opioid/sedative (sedo-analgesia) or epidural pain relief. Subsequently, this study showed that the two groups were comparable in their socio-demographic data.

Variable	EG	NON-EG	P-value
Duration of first stage	173.9 ± 11.2	194.4 ± 25.1	0.01
Duration of second stage	23.5 ± 4.8	28.5 ± 3.3	0.02
Oxytocin augmentation	7	3	
Mode of delivery			0.60
Normal delivery	17 (68)	14 (56)	
Emergency cesarean section	8 (32)	11 (44)	
Post-delivery events			0.27
Retained placenta	2 (8)	3 (12)	
Episiotomy	12 (48)	15 (60)	
Maternal blood loss	149.7 ± 37.2	136.3 ± 27.1	
Neonatal outcome			
Apgar 1 minute			
>7	23 (92)	21 (84)	
<7	2 (4)	3 (12)	
Apgar 5 minutes			
<7	0	1 (4)	

Mean ± standard deviation, number (percentage)

Labour characteristics and outcome

	Epidural group	Non-epidural group
Overall experience of labor		
Worse than expected	0	11 (44)
As expected	5 (20)	13 (52)
Better than expected	20 (80)	1 (4)
How much of the labor pain do you remember?		
Nothing	14 (56)	5 (20)
Some	6 (24)	17 (68)
Everything	4 (16)	3 (12)
Did you feel in control?		
Not at all	2 (8)	13 (52)
Some control	7 (28)	9 (36)
Completely in control	16 (64)	3 (12)
Were you actually sick during labor?		
Yes	6 (24)	16 (64)
No	19 (76)	9 (36)
How sleepy were you in labor?		
Not at all	12 (48)	5 (20)
A little	9 (36)	11 (44)
A lot	3 (12)	9 (36)
Were you worried about the effect of the pain relief on your baby?		
Not worried	21 (84)	5 (20)
Somewhat worried	1 (4)	12 (48)
Extremely worried	3 (12)	9 (36)
How would you grade pain relief during labor?		
Adequate	22 (88)	4 (16)
Inadequate	2 (8)	18 (72)
Not sure	1 (4)	3 (12)

Number (percentage)

Views 1-hour post-delivery

Following the completion of the birthing process, acute perineal pain is very common (**MacArthur & MacArthur, 2004**). It could be due to the extensive stretching of the perineal tissues, spontaneous perineal tear (unintended laceration of the skin and other soft tissue structures which, in women, separate the vagina from the anus) or from an episiotomy (intended surgical incision to widen the introitus to facilitate delivery). It has also been reported (**Klein et al, 1994**) that both episiotomy and perineal laceration are strongly associated with the presence of perineal pain during the immediate postpartum period and up to 3 months in about 11% of women. A research (**East & Sherburn, 2012**) submitted that over a third of women experienced moderate to severe perineal pain, particularly when walking or sitting to breastfeed their babies and while over one half of the women noted pain interfered with their ability to sleep. The prevalence of perineal pain and the associated impact on parturient's recovery from childbirth warrant the proactive care in providing a variety of effective pain relief options to them.

The incidence of post-episiotomy perineal pain relief was studied in primiparous parturients after repairing with two local anaesthetic agents. It was demonstrated that the use of 0.25% plain bupivacaine was tolerable and produced over a 7-hour period of complete pain relief than those who received 1% plain lidocaine. Most of the women depended less on the attending nurses and were able carry

out bedside chores (**Fyneface-Ogan, Mato & Enyindah, 2006**). It is well known that an individual's pain response seems to be the most relevant factor in the development of persistent pain. The prevalence of chronic pain directly related to childbirth, at 6 months post-delivery, is however very low (< 2%) compared to chronic pain which occurs after other types of tissue trauma as in common surgical procedures (**Lavand'homme & Roelants, 2016**).

Normal pregnancy is often associated with a gradational accretion in circulating CRH and ACTH and in the third trimester also in free cortisol levels. A current longitudinal study on 20 healthy expectant mothers manifested a progressive increase in total plasma cortisol, corticosteroid-binding globulin (CBG) and 24-h urinary free cortisol, with circulating levels reaching the highest point during the third trimester to levels threefold higher than those in non-pregnant controls (**Jung et al, 2011**). The addition in total plasma cortisol concentration is mainly as a result of the oestrogen-stimulated increase in CBG concentrations, whereas the dynamics or the systemic fundamental for the rise in free cortisol in the course of the later stages of pregnancy are not well comprehended. Still, the identified increase may manifest modifications in the set point of the hypothalamic–pituitary–adrenal axis in the course of pregnancy or an anti-glucocorticoid consequence brought to bear by the accretive progesterone levels, which have been proven to maintain a tally with increments in salivary cortisol (**Allolio et al, 1990**).

Basically, Cortisol is a product of fear or stress, which is emitted by the adrenal glands as part of the fight-or-flight mechanism. Undoubtedly, pregnancy and childbirth are stressful. The stress of painful labour could cause further elevation of cortisol level, besides increasing the risk of depression (post-delivery stress disorder), elevation of blood pressure, interference with memory, potentially trigger for mental illness and decreased resilience.

Pertinently, the pain of childbirth is an intricate stimulus known to activate and boost adaptive reactions in both mother and foetus; as such, in consideration of that we sought to ascertain whether, or not,

assuagement of pain with single-shot spinal analgesia can effectually work on cortisol levels during the birthing process in 40 parturients (**Fyneface-Ogan, John & Enyindah, 2013).** While one group of labouring women had sedo-analgesia: intravenous pentazocine 30 mg with promethazine 25 mg, the other group received intrathecal bupivacaine 2.5 mg with fentanyl 25 mcg. Subsequently, the maternal cortisol levels were assessed before and after administration of analgesia at regular intervals during labour and in the postpartum period.

Eventually, while there was no trace of difference in the baseline cortisol levels (SA – 338.05±8.24 ng/dl and SSA – 340.14±6.29 ng/dl), p=0.124, but at the 1st hour of labour, the cortisol level in the SA group showed a steep rise compared to the SSA group, (p=0.0001). The distinction in the cortisol levels at 2nd and 3rd hours between the groups was statistically significant (P=0.0001). Consequent upon delivery, both groups depicted stepwise fall in cortisol levels. The disparity in the levels remained statistically significant (p=0.0001) until the 18th hour after onset of labour. Thus, it was construed that single shot spinal analgesia afforded a short duration but profound pain relief with lower maternal cortisol levels during labour and in the immediate postpartum period. Although in a heterogeneous study population, we also compared the differential impact on two anaesthetic techniques on cortisol levels in Nigerian surgical patients. The research (**Aggo, Fyneface-Ogan & Mato, 2012**) highlighted the complexity of stress response characterised by neurohumoral, immunologic and metabolic alterations following surgical procedures. Results of their findings showed that the baseline mean plasma cortisol level was 88.70 ± 3.85 ng/ml for group A and 85.55 ± 2.29 ng/ml for group B, *P*=0.148. At 30 minutes after the start of surgery the plasma cortisol level in the GA group was 361.60 ± 31.27 ng/ml, while it was 147.45 ± 22.36 ng/ml in the EA group, representing a significant difference, *P*=0.001. At skin closure the mean plasma cortisol value of 384.65 ± 48.04 ng/ml recorded in the GA group was found to be significantly higher than the value of 140.20 ± 10.74 ng/ml in the GA group, *P*<0.002. Thence, the study concluded that the utilisation

of plasma cortisol as a measure, bupivacaine-based epidural anaesthesia significantly abates the stress response to surgical stimuli when compared with isoflurane-based tracheal general anaesthesia. Sequent upon this finding and that of a corresponding previous study (**Fyneface-Ogan, John & Enyindah, 2013)** it is demonstrably evident that neuraxial blocks in general, reduce the stress response to painful stimulus.

Childbirth is now well recognized as the most painful experience ever known to women of child bearing age and, regional anaesthesia/analgesia is considered the optimal technique for obstetric patients; nevertheless, the optimal method of regional anaesthesia for delivery remains to be determined. However, very many different potent agents injected into the subarachnoid space have been used to produce profound analgesia in obstetrics. A study aimed at finding the effectiveness and safety of the single shot spinal analgesia for pain relief in labour was conducted by some workers (**Adeyemi, Vernon & Medge, 2009**), which was further corroborated by another group of workers (**Otokwala, Fyneface-Ogan & Mato, 2013**), in which the effect of single shot low dose spinal bupivacaine only and bupivacaine with fentanyl on labour outcome was demonstrated.

In their study of one hundred and twelve parturients in labour, **Otokwala et al. (2013)** randomised the parturients into two groups of 55 each. While one group received 2.5 mg of spinal plain bupivacaine only, the other had 2.5 mg plain bupivacaine with 25 mcg of fentanyl. The investigation indicated that the numeric rating pain scores for groups B and BF were significantly cut down from a mean pre-spinal score of 8.17 +/- 0.96 cm and 8.30 +/- 0.23 cm respectively to a mean post-spinal pain score of 0.23 +/- 0.45 cm and 0.09 +/- 0.47 cm respectively, $p = 0.000$. The mean duration of analgesia in Group B was 61.60 +/- 6.47 mins, whereas it was 128.98 +/- 21.61 mins in Group BF, $p = 0.000$. On the one hand, the study demonstrated that low dose spinal bupivacaine either alone or in combination with fentanyl is safe for labour analgesia, but on the other, it was apparent that the combination of

bupivacaine with fentanyl provided much more prolonged pain relief.

Again, in a similar prospective, randomized, and controlled study carried out by **Fyneface-Ogan, et al. (2012**), the efficacy of single shot intrathecal bupivacaine with dexmedetomidine and bupivacaine with fentanyl on labour outcome was evaluated.

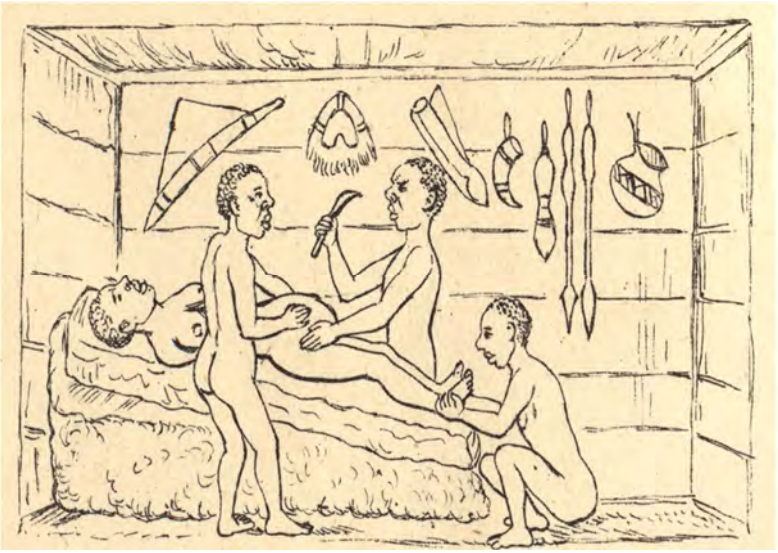
Subsequently, to ensure effectuality, ninety labouring multiparous women were studied and made to receive single shot intrathecal bupivacaine alone (B), bupivacaine with fentanyl (BF), or bupivacaine with dexmedetomidine (BD). Sensory and motor block characteristics; time from injection to two dermatome sensory regression, sensory regression to S1 dermatome, and motor block regression to Bromage 1 were recorded. Labour pain was assessed with a 10 cm verbal pain scale. Peak sensory block levels in the three groups were essentially the same (p=0.56). The time for sensory and motor blocks to reach T10 dermatome and Bromage 1, respectively, was faster in group BD than in the other groups (p=0.0001). The time for sensory regression to S1 was significantly prolonged in the group BD (p=0.0001). Motor block regression time to Bromage 1 was also prolonged in the group BD (p=0.0001). Neonatal outcome was normal in all groups. The study showed that single shot intrathecal bupivacaine/dexmedetomidine significantly prolonged sensory block in labouring women.

There are situations when the parturient will be unable to achieve a spontaneous vaginal delivery following the size of the baby or is in distress following lack of oxygen, and so many other reasons. When any of such situations arise, an operative delivery may be urgently indicated.

OPERATIVE DELIVERY AND ANAESTHESIA

Until the late nineteenth century, Caesarean section was a taboo and those who had it were profiled and ostracized. More so, female surgeons were particularly barred from carrying out Caesarean sections in even in Western society, and were also largely denied

admission into medical schools. However, in spite of the constraints, a female surgeon conducted the first recorded successful Caesarean in the British Empire. The name of the woman was **James Miranda Stuart Barry**; she performed the operation while masquerading as a man and serving as a physician to the British army in South Africa sometime between 1815 and 1821. While Barry applied Western surgical techniques, nineteenth-century travellers in Africa likewise reported instances of indigenous people successfully carrying out the procedure with their own medical practices.



Mr. Vice Chancellor Sir, history indicated that the early European travellers in the Great Lakes region of Africa during the 19th century observed Caesarean sections, which was equally performed on a regular basis. Evenly, in 1879, one British traveller, R.W. Felkin, witnessed Caesarean section performed by Ugandans. The healer reportedly utilised banana wine to semi-intoxicate the woman and to cleanse his hands and her before surgery. Afterward, he used a midline incision and applied cautery with a piece of iron that has been roasted in the fire to minimise haemorrhaging. Then, he

massaged the uterus to make it contract but did not suture it; the abdominal wound was pinned with iron needles and dressed with a paste prepared from roots. Subsequently, the patient recovered well, and Felkin concluded that this technique was well-developed, and had clearly been employed for a long time. Similar reports was registered in Rwanda, where botanical preparations were also used to anaesthetize the patient, as well as promote wound healing (**US-NIH, 2009**).

Likewise, it is on record that one Dr. James Barry, a European doctor who was a Military Surgeon carried out the first successful Caesarean section in Africa, specifically Cape Town, while posted there between 1817 and 1828 (**www.newscientist.com – accessed 2018**).

Mr. Vice Chancellor Sir, Caesarean section is now frequently regarded as part of the normal birthing process. Consequently, Caesarean section rates have been increasing progressively worldwide (**Bragg et al, 2010**), with a wide variability amongst various countries and regions (**Althabe et al, 2006**). Thus, with this global trend, the need for anaesthesia is also increasing along with great challenges (**Fyneface-Ogan, 2012**).

Prior to the close of the last millennium, 80 - 90% of the Caesarean sections in the sub-Saharan Africa were frequently performed under general anaesthesia. The figure was the same at the University of Port Harcourt Teaching Hospital. It is a universal knowledge that general anaesthesia for Caesarean section is frequently associated with airway manipulation, pulmonary aspiration, awareness, poor maternal bonding, deep venous thrombosis, delayed hospital discharge and neonatal depression. A review of Anaesthesia for Caesarean section carried out showed that 73.02% of the surgeries were performed under general anaesthesia while regional anaesthesia constituted only 25.22% of the total number of cases (**Fyneface-Ogan, Mato & Odagme, 2005**). However, the use of general anaesthesia has fallen dramatically in the past few decades following the numerous untoward effects on both mother and the

newborn. At present, the use of regional anaesthetics (spinal anaesthesia) for Caesarean section constitutes about 93-96% of the cases.

To that end, the upsurge in the use of regional anaesthesia for Caesarean section opened another frontier of complications, including post-dural puncture headache (PDPH). Meantime, before the twentieth century (1898), the incidence of post-dural puncture headache was 66% (**Wulf HF, 1998**). Withal this alarmingly high incidence of post-spinal headache was likely attributable to the use of large gauge, medium bevel, cutting spinal needles (17G Barkers Spinal Needle and 18G Crawford spinal Needle). Nevertheless, in 1956, with the introduction of 22G and 24G needles, the incidence was estimated to be 11% (**Vandam & Dripps, 1956**).

Today the use of fine gauge pencil-point needles, such as the Whitacre and Sprotte® has produced a greater reduction in the incidence of post-dural puncture headache, which varies with the type of procedure and patients involved. It is related to the size and design of the spinal needle used and the experience of the personnel performing the dural puncture, age and sex of the patient. Comparing the incidence of PDPH using various designs and sizes of spinal needles in women undergoing Caesarean section, our study was able to show that "needle size still matters" even if the needle tips are of different configurations (**Fyneface-Ogan, Mato & Odagme, 2006**). More women who had a larger needle size developed more PDPH than those with smaller gauge needles.

Mr. Vice Chancellor Sir, whether regional anaesthesia or general anaesthesia, safe and timely administration of anaesthesia for Caesarean section is key in reducing the morbidity and mortality of both the parturient and child. Although the risk factors contributing to maternal mortality from anaesthesia in low-income and middle-income countries and the burden of the problem are still obscure, difficult airway management during general anaesthesia, inadequate supervision of trainee anaesthetists and a lack of appropriate monitors have been demonstrated in one study as the major

anaesthetic reasons for maternal mortality (**Enohumah & Imarengiaye, 2006**).

However, a delay in the interval between decision and operative delivery could have adverse effects on both mother and child. Although the decision-to-delivery interval (DDI) of 30 minutes for emergency Caesarean sections has been widely recommended, there is little evidence to support it. In the sub-Saharan Africa, the delay in operative delivery could be multifactorial. In a one-year prospective audit, a research (**Fyneface-Ogan, Mato & Enyindah, 2009**) was carried out at the University of Port Harcourt Teaching Hospital, the DDI was evaluated in 200 consecutive women who had emergency caesarean section. Out of the number recruited, 71.5% had received antenatal care. The mean maternal age was 27.5±4.54 years and mean parity was 1.95± 1.61. The mean transit time during transfer of patient from labour ward to theatre was 47±3.81 seconds over a distance of 48.16 metres. The mean DDI was 4.2±0.7hours. Reasons for the delay included busy theatre suites, need for counselling from spiritual leaders, unwillingness to sign consent for surgery (waiting for spouse to be available to sign consent for surgery), and delayed laboratory results in 36%, 24%, 13% and 11% women respectively. The study concluded that the intrinsic socio-econo-cultural and religious inclinations of the parturients can influence the DDI. A prolonged DDI could negatively impact on APGAR scores of babies, a clue on the state of health of the newborn baby and an important measure of our perinatal morbidity and mortality index, and may contribute to maternal mortality.

The effective relief of pain is a very crucial factor which physicians take cognisance of when treating patients undergoing surgery. This is because they recognise that pain relief has significant physiological benefits; hence, monitoring of pain relief is increasingly becoming an important postoperative quality measure. The goal for postoperative pain management is to lessen or completely eliminate pain and discomfort with a minimum of side effects. Various agents (opioid vs. non-opioid), routes (oral,

intravenous, neuraxial, regional) and modes (patient controlled vs. “as needed”) for the treatment of postoperative pain exist. Even though the mainstay of postoperative analgesia is customarily opioid based, yet progressively more evidence exists to substantiate a multimodal approach; just with the sole intent of lessening opioid side effects, i.e., nausea and ileus, in addition to the improvement of pain scores.

However, analgesia administered before the painful stimulus occurs may prevent or substantially reduce subsequent pain or analgesic requirements. Ipso facto, though this hypothesis has occasioned numerous clinical studies, nevertheless few robust studies have manifestly authenticated its effectuality. Pre-emptive analgesia is a treatment that is introduced before and is operational during the surgical process in order to reduce the physiological upshots of nociceptive transmission elicited by that activity. Due to this 'protective' effect on the nociceptive pathways, pre-emptive analgesia has the potential to be more effective than a similar analgesic treatment initiated after surgery. Consequently, immediate postoperative pain may be reduced and the development of chronic pain may be prevented.

Effective pre-emptive analgesic methods engage multiple pharmacological agents to decrease nociceptor activation by blocking or through the reduction of the receptor activation, in addition to inhibiting the production or activity of pain neurotransmitters. Pre-emptive analgesia can be administered by means of local wound infiltration, epidural or systemic administration prior to surgical incision. A meta-analysis of randomised trials reported that patients who received pre-emptive local anaesthetic wound infiltration and nonsteroidal anti-inflammatory administration experienced a decrease in analgesic consumption, but no decrease was registered in postoperative pain scores. It is palpable that pre-emptive epidural analgesia did show a decrease in pain scores as well as analgesic consumption (**Ong et al, 2005**). Withal, pre-emptive local anaesthetic injection around small laparoscopic port incision sites was not functional with regard to the

management of postoperative visceral pain (**Leung et al, 2000**). Largely, pre-emptive analgesia may offer some evanescent benefits, particularly in ambulatory surgery patients.

However, deficient pain relief sequel to a Caesarean delivery may weaken the mother's capability to fully provide the best care for her infant in the immediate postpartum period. To that extent, this incapacitation will adversely affect early interactions between mother and infant. By the same token, pain and anxiety may also reduce the proficiency of a mother to breast-feed effectively. Hence, it is necessitous that pain relief be safe and effectual, so as to ensure that it does not interfere with the mother's ability to move around and care for her infant, and that it results in no adverse neonatal effects in breast-feeding women.

Although there are varied opinions on the role of ketamine as an agent for pre-emptive analgesia, some workers (**Kwok et al, 2004**) confirm the pre-emptive effect of ketamine, others claim that it only delays time to request for supplemental analgesic (**Oliveira et al, 2004**). **Ebong, Mato & Fyneface-Ogan (2011**) evaluated the effect of low dose intravenous ketamine as a pre-emptive analgesic in patients undergoing Caesarean section under spinal anaesthesia. This prospective, randomised, double blind, placebo-controlled study showed that the time for first analgesia request (time from institution of subarachnoid block to when patient requests for pain relief) in the ketamine group had a significantly more prolonged mean analgesia request time of 193.44±26.53 mins while than the non-ketamine group - 140.14±22.34 mins. The difference in the mean analgesia request time was statistically significant, p=0.0001. The study showed that the pre-incisional administration of low dose intravenous ketamine delayed the time to first analgesic request in women who had Caesarean section under bupivacaine/fentanyl spinal anaesthesia. However, the study could not substantially demonstrate the pre-emptive analgesic property of ketamine. The failure of this study to show the desired effect of ketamine has increased the on-going controversy regarding the concept of pre-emptive analgesia thought to be exhibited by ketamine.

Continuous spinal anaesthesia (CSA) is an underutilised technique in modern anaesthesia practice. Compared with other techniques of neuraxial anaesthesia, CSA allows incremental dosing of an intrathecal local anaesthetic for an indefinite duration, whereas traditional single-shot spinal anaesthesia usually involves larger doses, a finite, unpredictable duration, and greater potential for detrimental haemodynamic effects including hypotension, and epidural anaesthesia via a catheter may produce lesser motor block and suboptimal anaesthesia in sacral nerve root distributions. After case reports of cauda equina syndrome were reported with the use of spinal microcatheters for CSA, these microcatheters were withdrawn from clinical practice in the United States but continued to be used in Europe with no further neurologic sequelae.

The main advantages of CSA over epidural anaesthesia and single shot spinal anaesthesia are its easier technique and the possibility of providing an adequate level and duration of anaesthesia with small intermittent doses of local anaesthetic, which also minimises the risks of cardiovascular and respiratory disturbances. These qualities are of special value for lower abdominal and lower limb surgery in elderly and high-risk patients; they constitute the primary indication for CSA.

In one prospective study (**Fyneface-Ogan & Job, 2013**) we demonstrated the usefulness of this technique of regional anaesthesia in 30 women undergoing repeat caesarean sections. In the study we determined the difference between priming and non-priming of the Wik-Wire extension set with local anaesthetic on the induction-incision interval. The outcome showed that the primed Wik-wire extension set had a shorter induction-incision interval, hence reducing the induction-delivery interval following the use of continuous spinal anaesthesia for repeat Caesarean section. Continuous spinal anaesthesia has been shown to be a useful technique of anaesthesia for high-risk parturients especially those with cardiomyopathy coexisting with pregnancy scheduled for caesarean section. Parturients with peripartum cardiomyopathy present with the typical signs and symptoms of left ventricular

failure. Most of the cases recorded were noted after delivery and the immediate postpartum period. However, when the disease develops during the last month of pregnancy the diagnosis of cardiac failure is not that perceptible through signs and symptoms alone since some of those symptoms, such as fatigue, orthopnoea, and pedal oedema, are common among normal parturients during late pregnancy.

Parturients with peripartum cardiomyopathy require special anaesthetic care during labour and delivery. Invasive monitoring, including an arterial line and pulmonary artery catheter, should be used to assess the patient's haemodynamic status and guide management. The cardiovascular stress of labour and delivery may lead to cardiac decompensation. When that situation occurs, the anaesthesiologist may need to administer vasoactive agents, such as nitroglycerin or nitroprusside for preload and afterload reduction and dopamine, dobutamine or milrinone for inotropic support. Data from the pulmonary artery catheter is essential to determine the appropriate pharmacologic therapy for each patient.

Accordingly, early application of labour analgesia to minimise further cardiac stress connected with pain is vital in the anaesthetic management of these patients. Various analgesic techniques present exceptional merits in the haemodynamic management of the parturient, and simultaneously providing excellent analgesia. A continuous spinal catheter technique allows for intermittent intrathecal opioid injection for analgesia all through the first stage of labour. Supplementation with a small dose of intrathecal local anaesthetic is sometimes needful for it makes provision for adequate analgesia for the second stage of labour and delivery. Appositely, a significant advantage of this technique is that haemodynamic stability is more easily achieved because a local anaesthetic-induced sympathectomy is avoided for the majority or all of the labour process.

A case of peripartum cardiomyopathy that was successfully managed with a continuous spinal anaesthesia for Caesarean section was reported by **Fyneface-Ogan & Ojule (2014**). In that report, a 27-year-old Nigerian woman that presented at 31 weeks' gestation with no previous history of hypertension heart disease, but super morbidly obese (body mass index of 42 kg/m^2), with uncontrolled hypertension, severe pulmonary oedema who required an urgent Caesarean section. The patient was stabilised in the hospital's Intensive Care Unit. She was placed on oxygen by non-rebreathing facemask while receiving intravenous labetalol and frusemide. Following a worsening clinical state, an urgent Caesarean section was conducted under continuous spinal anaesthesia using 7.5 mg intrathecal 0.5% isobaric bupivacaine and was delivered of a 1.8 Kg live female baby with good Apgar scores. The patient's haemodynamic status was carefully monitored and fluid management guided by data from the non-invasive monitors while the anaesthetic level was slowly increased At the end of the surgery, mother and baby were transferred to the ICU and SCBU respectively. After a 7-day intensive treatment, she was discharged home.

This case report illustrated the recognition of peripartum cardiomyopathy and the use of a more haemodynamic stable anaesthetic technique. It also described the need for collaboration with multiple medical specialists before, during delivery and after delivery to provide the best possible outcome for both mother and infant.

From time to time, the anaesthetist is met with some unavoidable nightmares. These nightmares challenge his competency in terms of skill and adequate knowledge of his basic anatomy, physiology and anaesthetic skills. One of these challenges is administering anaesthesia on an achodroplastic parturient. Anaesthetic management in dwarfism is challenging, for it is often complicated by conditions such as deformed spine, limited neck mobility, and narrowed pharynx, leading to high-risk in both general anaesthesia and regional anaesthesia. However, such a parturient was

successfully managed for anaesthesia for emergency Caesarean section (**Otokwala & Fyneface-Ogan, 2017**).

Then again, it may be technically difficult to perform regional anaesthesia in the patients with significant physical abnormalities, such as severe lumber lordosis, spinal deformity, and potential cord compression. In addition, the risk of intrathecal anaesthesia for pregnant patients with dwarfism is high due to a lack of X-ray examination, which is not usually indicated for pregnant patients. The patient in this index case was successfully managed with a low volume (dose) single shot spinal anaesthesia. Both mother and child were released home on the 7th day postoperative.

It should be noted that irrespective of the anaesthetic technique, either regional or general, each has potential for complications. Above and beyond that, it has been verified that in obstetric patients, the complications are potentiated due to pregnancy-related changes in physiology and due to various other factors. Besides, increasing trend of Caesarean section in the setting of increasing maternal age, obesity and other concomitant diseases will continue to challenge the attending anaesthetist in the task of providing safe regional and general anaesthesia.

One of such complications following regional anaesthesia is hypotension. Hypotension following neuraxial blockade is attributed to sympathetic inhibition, which causes a significant decrease in the venous return due to dilatation of the resistance and capacitance vessels (**Baron & Decaux-Jacolot, 1986**). This complication, if untreated before the delivery could lead to severe morbidity and mortality of either mother or child or both. Some of the methods of preventing hypotension during anaesthesia for Caesarean section include the administration of vasopressors, appropriate positioning of the parturient and a rapid administration of intravenous fluids. The administration of vasopressors appears to be mainstay in the treatment of hypotension. We compared the prophylactic infusion of two vasopressors – phenylephrine and ephedrine during combined spinal epidural for Caesarean section at the UPTH. The study

showed that ephedrine and α-adrenergic agonists (phenylephrine) appear to be equally efficacious in the treatment outcome (**Odagme, Fyneface-Ogan & Mato, 2013**).

By influencing spread of local anaesthetic, maternal position may affect the speed of onset of sensory block and thus the haemodynamic effects. We studied if the influence of maternal position on spread of plain bupivacaine during spinal anaesthesia for Caesarean section using plain bupivacaine in the lateral position would result in less hypotension compared with the sitting position (**Obasuyi BI, Fyneface-Ogan S & Mato CN, 2013**). The result showed that although the onset of hypotension was similar between groups, the lowest recorded mean arterial pressure was greater in those in lateral position (72.9±11.2 mmHg) than in sitting group (68.2±9.6 mmHg; P=0.025). The incidence of hypotension was also lower in patients in the lateral position (17/50, 34%) than those in the sitting position (28/50, 56%; P=0.027).

Cardiac arrest can occur anytime during pregnancy and delivery. During delivery this could be due either to the complications of the mode of anaesthesia or following intercurrent disease states in pregnancy. Cardiopulmonary arrest in pregnancy is a rare occurrence, for it occurs in 1 in 30,000 pregnancies (**Datner & Promes, 2006**). Nonetheless, when it does occur, it is important for a Physician Care giver to be able to recognize the characteristics peculiar to the pregnant state. This is because a good comprehension of the anatomic and physiologic changes of pregnancy is helpful in the treatment and diagnosis. Even though focus should mainly be on the mother, still, a Physician Care giver should be conscious of the fact that there is another potential life at stake. Resuscitation of the mother is performed in the same manner as in any other patient, except for a few minor adjustments because of the changes of pregnancy. The specialties of obstetrics and neonatology should be involved early in the process to ensure appropriate treatment of both mother and the newborn.

Largely, the causes of cardiac arrest are numerous, even with regard to the general population; howbeit, pregnancy notably intensifies the risks to both the mother and the foetus. Correspondingly, the changes in maternal anatomy and physiology during pregnancy can affect, not only the incidence of certain diseases, but also the ability of the mother to adapt to illness (**Morrison, 2006**). Instances of these illnesses are trauma, pulmonary embolism; haemorrhage, hypertension, and infection; significantly, they are the leading causes of maternal death in pregnancy.

We sought to carry out an interview schedule to assess the knowledge of cardiopulmonary resuscitation amongst Physician care givers in all the major hospitals in south-south Nigeria (**Fyneface-Ogan & Mato, 2011**). The result of the study showed that only 3% of the study population is knowledgeable in resuscitation skills. While, only about 1.5% of the Physicians have received some training in cardiopulmonary resuscitation of the pregnant woman, which consequently, is a shocking revelation of the unpreparedness of the Physician Care giver when confronted with this challenge.

MEDICAL DISEASES IN PREGNANCY

With medical care becoming more accessible, many parturients with intercurrent diseases are now beginning to seek intervention. According to Wikipedia, an intercurrent (or concurrent, concomitant or, in most cases, pre-existing) disease in pregnancy is a disease that is not directly caused by the pregnancy (in contrast to a complication of pregnancy). Nevertheless, there is the likelihood for the disease to become worse or occasioned a potential risk to the pregnancy, viz., causing pregnancy complications.

In such circumstances, women who wish to continue with a pregnancy require extra medical care, often from an interdisciplinary team. Such a team might include (besides an obstetrician) a specialist in the disorder and other practitioners (for example, Obstetric Anaesthetists, Neonatologists, Physicians, etc.).

That thyroid disease can trigger contrary effects on foetal and maternal well-being cannot be underscored, if left uncorrected in pregnancy. Worse still, the damaging effects of thyroid dysfunction can also spread beyond pregnancy and delivery to affect neuro-intellectual development in the early life of the child. Congruently, there is an increase in demand for thyroid hormones during pregnancy, and this will likely worsen a previously unnoticed thyroid disorder (**Spencer et al, 2015**). Withal, the most effective way of screening for thyroid dysfunction is not known. The review by Spencer et al, found that more women were diagnosed with thyroid dysfunction when all pregnant women were tested instead of just testing those at 'high-risk' of thyroid problems (those with family history, signs or symptoms). Finding more women with thyroid dysfunction meant that the women could have treatment and management through their pregnancies.

Though it is a universal fact that any hyperthyroid patient should be rendered euthyroid before elective surgery, yet Anaesthesiologists can come across inadequately treated patients during emergency situation, perhaps e emergency caesarean section. Such patients have hypermetabolic and hyperdynamic states which must necessarily be optimised as muchas possible with intravenous beta blockers and antithyroid drugs. Evenly, we reported a similar clinical scenario (**Fyneface-Ogan, Fiebai & Obasuyi, 2011**). The parturient was delivered by Caesarean section under spinal anaesthesia in the face of hyperdynamic circulation leading to high output cardiac failure, cardiac dysrhythmias and the difficult airway associated with huge goitre.

In a pregnant patient presenting with goitre, airway can be problematic as a result of accompanying pregnancy induced changes like generalised weight gain, increase in breast size, respiratory mucosal oedema and increased risk of pulmonary aspiration. Haemodynamic responses to laryngoscopy and intubation can be amplified, and subsequently becoming harmful. Equally, inadequate depth during general anaesthesia can generate into hypertensive crisis and dysrhythmias which can activate considerable morbidity.

As reported in our patient, regional anaesthesia is preferred for Caesarean section since it is not complicated and safer in such patients. Likewise, it also obviates manipulation of a potential difficult airway and cardiovascular problems attributable to inadequate depth.

With increase in westernised habits, cardiac diseases in pregnancy are on upward trend. This disease condition poses a great challenge to the attending anaesthetist. It is important to understand that even in normal parturients; pregnancy foists some dramatic physiologic changes on the cardiovascular system. Instances include an increase in plasma volume by 50%, an increase in resting pulse by 17%, and an increase in cardiac output by 50%. However, after delivery, the heart rate normalises within 10 days; also, within 3 months postpartum, stroke volume, cardiac output, and systemic vascular resistance return to the pre-pregnancy state.

The Cardiac Disease in Pregnancy (CARPREG) Risk Score (Table below) can be computed to approximate a woman's cardiac risk during pregnancy (**Siu et al, 2001**). Following this, one point is allotted to each of the following risk factors: a history of cardiac event or arrhythmia, New York Heart Association functional class greater than II or cyanosis, left-heart obstruction (mitral valve area <2 cm^2, aortic valve area <1.5 cm^2, or left ventricular outflow tract gradient >30 mmHg), and left ventricular ejection fraction (LVEF) < 0.40. Zero point confers a 5% risk of cardiac complications, 1 point a 27% risk, and 2 or more points a 75% risk.

TABLE I. Cardiac Disease in Pregnancy (CARPREG) Risk Score*

One point for each:
History of prior cardiac event or arrhythmias
New York Heart Association functional class >II or cyanosis
Left heart obstruction (mitral valve area <2 cm^2, aortic valve area <1.5 cm^2, or left ventricular outflow tract gradient >30 mmHg)
Left ventricular ejection fraction <0.40
Chance of cardiac complication:
0 points = 5% 1 point = 27% ≥2 points = 75%

*Developed by Siu et al, 2001[6]

The University of Port Harcourt Teaching Hospital is beginning to attend to these high risk patients undergoing anaesthesia for Caesarean section. One of these cases that posed a great challenge to attending anaesthetist was a 24-year old booked primigravida, with rheumatic heart disease in heart failure and lobar pneumonia who presented in active labour. The patient was immediately prepared for an emergency caesarean section under epidural anaesthesia (**Mato, Fyneface-Ogan & Aggo, 2003**). The patient was co-managed with the Cardiovascular and respiratory Physicians until she was discharged and deemed fit to go home. Consequently, the management of such patient accentuates the relevance of holistic and appropriate follow up and treatment and, the need to perform more epidural techniques in order to meet the ever increasing challenges to the Anaesthetist.

Myasthenia gravis is a complex autoimmune disorder. It causes antibodies to destroy the connections between your muscles and nerves. It follows that myasthenia gravis may be of special concern during pregnancy especially as its effect varies immensely among

parturients and in between pregnancies in the same woman. More women with this autoimmune disease are now presenting for treatment. The challenges in the management of the disease during pregnancy are enormous particularly to the anaesthetist. One case (**Fyneface-Ogan & Alagbe-Briggs, 2013)** highlighted the need for the anaesthetist to be knowledgeable in the management of this disease. The patient did not have routine antenatal care but presented for an emergency caesarean section. In general, myasthenia gravis does not have any adverse effects on pregnancy (**Ferrero et al, 2008**). However, during labour assistance might be required in the second stage with the help of forceps or vacuum extraction, as striated muscles are involved during this stage and these muscles can be affected by the acetylcholine (Ach) receptor antibodies. Caesarean section should be performed exclusively for obstetric indications, as surgery can be stressful for women with MG (**Berlit et al, 2012**). General anaesthesia should be avoided as neuromuscular drugs and narcotics can potentiate ACh receptor antibodies' effects on the neuromuscular junction. On account of that, regional anaesthesia is advocated for Caesarean section in these women.

Maternal deaths in developing countries like Nigeria are still very high (3rd in ranking) and this can be attributed to many factors. It is no gainsay that maternal mortality rate in Nigeria is 814/100,000 live births. Among the several causes of maternal death in sub-Saharan Africa is Eclampsia. One study (**Uzoigwe & John, 2004**) showed that high mortality was common among the unregistered primigravidas who usually present late with pre-eclampsia/eclampsia. The study equally evinced that there were 45 maternal deaths; 40 (88.9%) among the unregistered and 5 (11%) among the registered mothers constituting a maternal mortality ratio of 23, 121.4 and 339.7 per 100,000 deliveries respectively. The combined mortality ratio was 2735.6 per 100, 000 deliveries. While fifteen (37.5%) unregistered primigravida died of severe pre-eclampsia/eclampsia, contrariwise, a total of 1645 mothers delivered, 1472 (89.5%) were registered while 173 (10.5%) were unregistered with the hospital.

Preeclampsia/eclampsia has been described centuries ago despite lack of complete understanding of its pathophysiology. Around 400 BC, Hippocrates described that headache, convulsion and drowsiness are ominous signs associated with some pregnancies. Ancient civilisations of China, Egypt and India have all recognised and described the disease well.

However, management of the eclamptic patient requires a multidisciplinary approach involving the obstetrician, anaesthetist, intensivist, physician, paediatrician and the nurses. Anaesthesia for eclamptic undergoing caesarean section is one of the anaesthetist's nightmares. These patients have multiple systemic challenges including the cardiovascular and respiratory systems. Following a poor maternal and perinatal outcome, we (**Fyneface-Ogan & Uzoigwe, 2008**) compared the use of infiltrative anaesthesia with general anaesthesia in 76 eclamptic patients undergoing Caesarean section. The outcome of the study showed that twenty-one (60.0%) in gLA had mean Apgar scores of 8 compared to 10 (27.0%) in the gGA. The duration of hospital stay was longer in the gGA (17.1±4.1 days) than the gLA (13.0±1.6 days) with a statistically significant difference ($p<0.0001$). There were 5 (12.5%) maternal deaths in the gGA and 2 (5.0%) in the gLA. Intraoperatively, the mean arterial pressure and mean systolic pressure at skin incision were constantly and considerably higher in the gGA group than in gLA group. It was concluded therefore, that local infiltrative anaesthesia demonstrates a better maternal and perinatal upshot than general anaesthesia for eclamptic patients undergoing Caesarean section. In consideration of that, this protocol has since been adopted and in use for the management of eclamptics with a better outcome.

DECISION MAKING IN ANAESTHESIA

Prior to this time, caring and compassion were often the recognized and sole "treatments" available to clinicians. Even though over time, advances in medical science have provided new options, often improving outcomes, yet clinical decisions are left in the hands of the physician. As a result, the health care environment becomes a

place where patients and their families are often not given the opportunity to participate in the important discussions related to their problems. Patients are left in the dark with respect to how their problems are being handled, neither are they accorded the privilege of choice from the vast array of diagnostic and treatment options available to them.

As a matter of necessity, clinicians should endeavour to abstain from assuming an authoritarian role when dealing with patients. In contrast, they should learn to become more effective in their communication style in health care when dealing with their patients. In addition, novel patient-centred health information technologies that deliver information in a more timely fashion can help clinicians identify patients who are facing fateful health care decisions and to more efficiently elicit their preferences.

In one study (**Mato, Fyneface-Ogan & Edem, 2007**) where hospital workers were interviewed to identify their anaesthetic preferences, it was discovered that most of the staff preferred to remain awake during surgery. The study population opted for regional anaesthesia for fear of dying during general anaesthesia. This preference by patients could pose a great challenge to young anaesthetists who may not be well knowledgeable of the options requested by their patients

Evidence supports the shift in trends of practice towards shared decision-making, where patients are encouraged to express their views and participate in making clinical decisions (**Frosch & Kaplan, 1999**). Patients are also becoming more informed about the various options available in anaesthetic care and their participatory role in treatment outcome. Their demand for involvement in such decision-making processes for a particular anaesthetic technique may cause an increased demand in regional anaesthesia for Caesarean section. This could be a reflection of satisfaction for that form of anaesthetic care with a tendency to have the same experience again.

The significance of shared decision-making cannot be downplayed because it can improve the satisfaction outcome in the birthing process. Maternal satisfaction was studied in women undergoing anaesthesia for Caesarean section. Effectually, the outcome of this cross-over study showed that the mothers were more satisfied with being awake (Epidural anaesthesia) than undergoing general anaesthesia during an operative delivery (**Fyneface-Ogan, Mato & Ogunbiyi, 2009**). Using a modified 29-item questionnaire developed from the Likert's scale of satisfaction, the tool showed that maternal satisfaction during childbirth can be influenced by many factors such as mood changes and other psychological make-ups that are not within the control of the caregiver. Factors such as pain control, nausea, and vomiting are however within the control of the team.

Intraoperative events can greatly influence satisfaction scores of patients under anaesthesia. In this study the feeling of sense of control and maintenance of verbal contact with staff (communication) impacted a positive influence on the level of satisfaction in the epidural group. This finding seems to correlate with that of other workers in which women showed satisfaction with the ability to make some input in their management during the delivery process and also, afforded them an earlier contact with their newborn (**De Andres et al, 1995; Green & Baston, 2003**).

The decision on when to pass a tracheal tube in a parturient is also very vital in preventing airway soilage by the contents of the stomach, hence the options available for anaesthesia for Caesarean section.

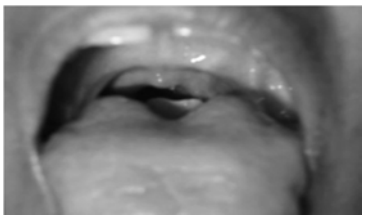
DIFFICULT AIRWAY VERSUS DIFFICULT TRACHEAL INTUBATION

One of the anaesthetist's nightmares is being confronted with the challenge of establishing a patent airway in parturient undergoing anaesthesia for Caesarean section. The difficulty in securing a patent airway and oxygenation portends a mortal danger to the patient. Difficult airway could be defined as the situation in which the

anaesthesia clinician experiences a great challenge with ventilation by mask or supraglottic airway (SGA), difficulty with tracheal intubation, or both. This situation is a dare emergency, where the life of the patient is “hanging in the balance”.

Structured communication between anaesthetists and anaesthetic assistants could help prepare for and deal with emergency airway difficulties. Talking before every patient, or at least before every surgical list, about the plan to manage difficulties should they develop is good practice. At a minimum, this involves thinking about the challenges that might be encountered and checking that the appropriate equipment is available. However difficult intubation is a situation when a normally trained anaesthetist needs more than 3 attempts or more than 10 min for a successful endotracheal intubation. The incidence of difficult intubation depends on the degree of difficulty encountered showing a range of 1-18% of all intubations to about 2:10000 - 1: million for "cannot ventilate-cannot intubate" situations (**Benumof, 1991**).

Difficult airway can be assessed and classified using a bedside technique. The classification, introduced in 1983 by an Indian-born American Anaesthetist, Seshagiri Mallampati, is one of the most accepted and commonly used predictors for difficult airway wherein lower classes are associated with easier intubation. In addition to the 4 classes described in its modified scoring system (I, II, III and IV), a new class was proposed by **Ezri et al (2003)**, in which the epiglottis is visible on mouth opening or tongue protrusion, which was labelled class zero (0).



Class 0

Class 0: Ability to see any part of the epiglottis upon mouth opening and tongue protrusion
Class I: Soft palate, fauces, uvula, pillars visible
Class II: Soft palate, fauces, uvula visible
Class III: Soft palate, base of uvula visible
Class IV: Soft palate not visible at all

Difficult tracheal intubation has been recognised as a major source of morbidity and mortality in clinical practice, emergency situations in particular. Although the complexity of intubation is often mentioned in the literature, but unfortunately, there is no uniform method attributable to the description of the "difficult intubation". Following the lack of a standard definition of difficult intubation, the incidence and factors relating to difficult intubation differ significantly from one institution or time period to another and are virtually unfeasible to compare directly.

Intubation difficulty is usually distinguished as a risk factor for morbidity and mortality. Unfortunately, there is no generally accepted definition of difficult intubation. The American Society of Anesthesiologists (ASA) has defined difficult tracheal intubation as when "proper insertion of the endotracheal tube with conventional laryngoscopy requires more than three attempts, or more than ten minutes" (**ASA, 1993**). Other proposed definitions include failure to intubate, more than two laryngoscopies, more than three attempts in the modified Jackson position, poor visualisation of the vocal cords, vocal cord movement, perception of jaw relaxation, subjective difficulty on the part of the operator, and combination of subjective evaluation and number of laryngoscopies.

In West Africa, difficult laryngoscopy is associated with 3.4% of the surgical population (**Merah et al, 2005**). When unanticipated, difficult airway can be a nightmare during laryngoscopy and tracheal intubation. However, in a study that we carried out, we described an experience with the use of a two-operator laryngoscopic technique (**Fyneface-Ogan & Mato 2006**). In the technique described, the patient with a potentially difficult airway is

placed in the modified Jackson position with a pillow 6 cm thick under the head, to allow alignment of the pharyngeal and laryngeal axes. The operators are trained anaesthetists.

Following the attainment of maximal intubating conditions, the first operator carries out the laryngoscopic manoeuvre using the Mackintosh laryngoscope while applying a downward and upward pressure to try to bring the laryngeal inlet into focus. With laryngoscopy, manipulation of the larynx, and successful visualisation of the glottis, the first operator stoops down, while the second operator leans over to pass the tracheal tube with the aid of a flexible introducer into the larynx.

While most times the newborn is discharged home along with the mother, the baby could undergo surgery immediately for corrective surgery or much later for other surgical reasons. Either way, administration of anaesthesia is usually required.

PAEDIATRIC ANAESTHESIA

VC Sir, I am an Obstetric Anaesthetist, and it is my desire that every woman goes home with her baby. In order to help in this regard, I make myself available to anaesthetize her baby when the need arises. Along this line, I have administered anaesthesia so many of these cases (some of whom presented for surgery as young as less than 6 hours post-delivery) and later reunited with their mothers. Most of these children are adults today.

Administering anaesthesia to paediatric patients can be a challenging in an inexperienced hand and even for the most skilled Anaesthetist. Some clinical conditions, their immature anatomic features and non-operating room settings can make these cases even more herculean, even for the most skilled paediatric anaesthetist (**Mato, Fyneface-Ogan & Aggo, 2017**).

Paediatric patients undergoing surgery are required to undergo some period of fasting. Preoperative fasting is defined as a prescribed period before a procedure when patients are not allowed the oral

intake of liquids or solids. The purpose of fasting guidelines are to enhance the quality and efficiency of anaesthesia care, stimulate evaluation of clinical practices, and reduce the severity of complications related to perioperative pulmonary aspiration of gastric contents (**Ljungqvist & Søreide, 2003**). Children, like adults, are required to fast before anaesthesia.

Many professional societies have issued their guidelines on preoperative fasting. The American Society of Anesthesiologists (ASA) (1999), Association of Paediatric Anaesthetists of Great Britain and Ireland (APAGBI) (2003), Royal College of Nursing (RCN) (2005) and European Society of Anaesthesia (ESA) (2005) have all recommended preoperative fasting of 2 hrs for clear fluids, 4 hrs for breast milk and 6 hrs for solids, nonhuman and formula milk in children (2-4-6 rule).

Clinical practice however is usually slow to change. We conducted a 6-month closed audit in two medical facilities to determine the length of preoperative fasting on 109 elective paediatric surgical patients and the cause for non-adherence to standard guidelines (**Fyneface-Ogan, Aggo & Otokwala, 2011**). Surprisingly all the children had their last meal by 22.00 hrs the day before the scheduled surgery. Afterward we found that the children were fasted much more (mean duration of fasting 14.7±0.8 hrs (range 12 – 20 hrs)) than the recommended period (3-6hrs). The children were overzealously fasted and appeared dehydrated before the scheduled surgery from lack of clear preoperative fasting guidelines.

Paediatric postoperative pain management has developed rapidly accompanying the development of new drugs. Irrespective of that, children have remained undertreated for postoperative pain because of the intricacy of pain evaluation, anxiety regarding cardiorespiratory and depression, amongst others.

Importantly, anaesthesia and operative fields are not only unfamiliar, but also constitute unpleasant scenarios for children, which are further aggravated by a separation from caregivers.

Additionally, hunger, fear of strange places, and perioperative pain can cause stress and result in indistinct behavioural and physiological changes. Although pain is often considered an inevitable consequence of operative procedures, its control is germane for the enhancement of both clinical outcome and patient's comfort. However, in spite of its germaneness, postoperative pain in children who had surgery is frequently under-treated. One large scale investigation submitted that 40% of paediatric surgical patients experienced moderate or severe postoperative pain, while 75% had inadequate analgesia (**Alönnqvist & Morton, 2005**).

One of the multimodal approaches to pain management is the use of local infiltration of the wound edges (**Kehlet & Holte, 2001**). Local infiltration of surgical wounds with either lignocaine or bupivacaine will provide analgesia for a few hours postoperatively. The toxic dose for each drug (3 mg/kg for lignocaine, 2 mg/kg for bupivacaine or ropivacaine) should not be exceeded. This is very useful for abdominal surgery and herniotomies.

However, there is a substantial body of literature suggesting that LA infiltration can have deleterious effects on wound healing. These reports are spread across a wide range of literature, including surgical, anaesthetic, ophthalmologic, pharmacologic, and cellular biochemistry and are often not appreciated in total. Problems with wound healing are difficult to assess in human studies: tensile strength is not easily measured by non-destructive methods, and long-term follow-up required to assess late sequelae, such as incisional hernias, is expensive and difficult. Although the impression from earlier studies is that ***"no untoward effects, evident from clinical examination, have been observed on wound healing in any study published"***, almost all clinical studies of local infiltration have reported only general, subjective impressions of wound healing over a limited time–their focus has been on the analgesic efficacy of wound infiltration.

Diverse animal models have tested the effect of local infiltration or topical application, on surgical wounds or corneal epithelium, using healing time, tensile strength, collagen synthesis, bone healing, infection, or inflammation as measures. Extrapolation to clinical practice must be made cautiously and confirmed by whole animal and human studies. However, the wound healing following infiltration with lidocaine with epinephrine was studied in 48 children who had herniotomies (**Fyneface-Ogan & Gbobo, 2010**). In this prospective randomised double-blind study, two groups of children were allocated to have either lidocaine plain infiltration or lidocaine with epinephrine wound infiltration at the end of surgery. The result showed that while the mean duration of analgesia in Lidocaine plain group was 68.9 ± 11.8 mins the lidocaine with epinephrine had 89.0 ± 17.4 mins (p=0.01). Wounds healed by primary intention by the 7th postoperative day in both groups. It was therefore, concluded that wound infiltration with lidocaine with or without epinephrine did not impair wound healing in humans.

Pain is perhaps the most feared symptom of disease, which a man is always trying to alleviate and conquer since ages. It is defined by the international association for study of pain as an "*unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage* (**IASP, 1979**).

Historically, children have been under-treated for pain and for painful procedures because of the wrong notion that they neither, suffer or feel pain, nor responded to or remembered the painful experiences to the same degree that adult did. An unproved safety and efficacy of the analgesics and worries about the risk of opioid induced respiratory depression, added more reasons for the under treatment of pain in children. It has been shown that under treatment of post-operative pain even in the children and newborns may trigger biochemical and physiologic stress response and cause impairments in pulmonary, cardiovascular, neuro endocrinal, gastrointestinal, immunological, and metabolic functions (**Rawal et al, 1984**). Equally, it has been reported that many types of the so

called “minor” surgery can cause significant pain in children and that, parents have a number of misconceptions concerning pain treatment (**Finley et al, 1996**).

The Society of Paediatric Anaesthesia, at its 15th annual meeting in New Orleans, Louisiana (2001) categorically avowed that the alleviation of pain as a “basic human right”, notwithstanding the age of the patient, not even the medical condition and treatment should be tenable enough to deny the patient of this right, likewise neither should the primary service response for the patient care or medical institution (**Frank, 2002**) should be a yardstick for the denial of this basic human right Hence, it has been proposed that the postoperative pain treatment must be included in the anaesthetic planning even before induction of anaesthesia, thereby adopting the idea of ‘managing pain before it occurs’ (**Langlade & Kriegel, 1997**). On a similar note, it cannot be denied that acute pain is the pain associated with a brief episode of tissue injury or inflammation, such as that caused by surgery, burns, or trauma. Also, in most of such cases, the intensity of pain diminishes steadily over a period of time. Following this, post-operative pain management is now an integral part of practice of paediatric anaesthesia in all major hospitals (**Fyneface-Ogan, 2014**).

In the meantime, various postoperative pain treatment modalities have been advocated in children. The aim is to make the intensity of the postoperative pain in children to be kept at the most tolerable level. In our study, the duration of postoperative analgesia and potential adverse effects generated by caudal bupivacaine 0.25% at 1 ml/kg with or without 1.5 µg/kg of neostigmine in children undergoing unilateral herniotomy was compared (**Tobin, Fyneface-Ogan & Mato, 2014**).

In this study, 66 children aged 1-6 years, of American Society of Anaesthesiologists physical status classes I or II for elective unilateral herniotomy under general anaesthesia without premedication were compared. The patients were randomly allocated into two groups of 33 each. One group received caudal

analgesia with plain bupivacaine 0.25% at 1 ml/kg alone, while the other group received caudal analgesia using a mixture of plain bupivacaine 0.25% at 1 ml/kg and neostigmine 1.5 µg/Kg. Postoperatively, monitoring of pain scores and time to first analgesic request and, total dose of analgesics administered in both within the first 24 hours were recorded.

The result of the study showed that all the patients participated throughout the study. There were no differences in the demographic characteristics (age, weight, ASA status) between the two groups. The mean duration of effective analgesia was significantly longer in the bupivacaine/neostigmine group, 460 ± 60.2 min. compared to bupivacaine alone group, 286.4 ± 47.8 mins; ($p < 0.001$). The analgesic requirements within the first 24 hours postoperatively significantly reduced in bupivacaine/neostigmine group, $p < 0.001$. The study therefore argued that by adding low dose of neostigmine to caudal isobaric bupivacaine significantly prolonged the time to first analgesic request and consequently attracted a significant reduction of postoperative analgesic requirement.

The significance of this study is that children ought to be pain free as much as possible. In addition, children should be made comfortable and less distressed, before, during and after surgery as well as during their stay in the hospital. These measures include the presence of parent with the child, nursing in a comfortable environment, allowing the child to adopt the most comfortable position and feeding if permissible.

REGIONAL ANAESTHESIA

Since August Bier administered the first spinal anaesthetic in August 16 1898, the use of this technique has become increasingly popular amongst anaesthetists and has changed the face of anaesthesia. The use of this technique makes a particular part of the body numb in order to relieve pain or allow surgical procedures to be performed. Types of regional anaesthesia include spinal anaesthesia (also called subarachnoid block), epidural anaesthesia, and nerve blocks. Regional anaesthesia is often used for orthopaedic

surgery on an extremity (arm, leg, hand, or foot), for female reproductive surgery (gynaecological procedures and Caesarean section) or male reproductive surgery, and for operations on the bladder and urinary tract. Relatedly, epidural analgesia is a pain relief; though it is usually utilised to alleviate the pain of labour and childbirth, but it can also be used to provide anaesthesia for other types of surgeries.

Still, this form of anaesthesia as compared to general anaesthesia is also associated with some complications. Although spinal anaesthesia is easy and safe, yet it is not without life-threatening complications. For instance, we carried out an investigation on 98 consecutive elective surgical and gynaecological patients, while the objective was to study the pattern of complications following spinal anaesthesia (**Jebbin, Fyneface-Ogan & Johnson, 2007**). The result demonstrated that about 47.5% of the patients suffered shivering, while about 12.5% had hypotension as a complication. In the end, the examination verified that shivering appeared to be the commonest form of morbidity. It was also discovered that a proficient management of subarachnoid block, equipoised with a meticulous monitoring are crucial and indispensable to a good outcome.

It is therefore demonstrable as aforestated that surgery and anaesthesia cause shivering as a result of thermal dysregulation, a compensatory mechanism and is further worsened by vasodilatation from spinal anaesthesia that redistributes core body heat. Notably, post spinal shivering is an unpleasant complication which is not only discomforting, but also recurrent in nature after surgery with many levels or categories, i.e. from a mild form of having skin eruptions to a severe form with generalised continuous skeletal muscle contractions with prevalence of up to 50–80 %. Nonetheless, the exact causes of post spinal shivering are still unclear though various mechanisms have been postulated with some attributing it to a thermoregulatory response to hypothermia that causes temperature-induced changes of neurons in the mesencephalic reticular formation and dorsolateral pontine and medullary reticular

formation. This increased muscular activity leads to increased oxygen consumption and carbon dioxide production that results in hypoxaemia, hypercarbia and lactic acidosis which are not only discomforting but also worsens pain sensation.

Shivering can be checked through the maintenance of intraoperative normothermia, as well as providing warm fluids, in addition to using warm clothing covers sites or through the administration of pharmacologic treatments like tramadol, clonidine and pethidine (meperidine). In another research **(Mato, Isa & Fyneface-Ogan, 2002)**, the antishivering effect of tramadol was compared with that of ketamine, a relatively cheap and easily assessable agent. In this study, 60 surgical patients were randomly assigned to three groups. While one group had a low (sub-anaesthetic) dose, the other groups received tramadol and placebo for the treatment of postspinal shivering. Ultimately, the examination affirmed that there was no significant difference between the group that received tramadol and ketamine; (p= 0.201 Kruskal Wallis Anova). Both tramadol and ketamine aborted postspinal shivering while shivering continued in those who received placebo. Following these findings, the department of anaesthesia has since been using low dose ketamine to treat postspinal shivering without sedation and hallucination as side effects.

Furthermore, regional anaesthesia is associated with reduction of blood loss during surgery. This is frequently seen as one of the advantages of using this technique for lower abdominal and limb surgeries. However, there are conflicting reports on the influence of different anaesthetic techniques, such as regional versus general anaesthesia, on intraoperative blood loss. While a study by **Shir et al. (1995**) concluded that epidural anaesthesia did not reduce bleeding, we (**Fyneface-Ogan & Eke, 2004**) found a significant reduction in blood loss by about 36.6% (p=00000) as compared to general anaesthesia. Following the finding from our study, most of the lower abdominal and urologic surgeries including transurethral resection of the prostate (TURP) are now performed under regional anaesthesia with good sensorimotor blockade and recovery profile of the patients **(Nnaji, Mato & Fyneface-Ogan, 2014; Uwandu,**

Fyneface-Ogan & Ebirim, 2016) . Following the use of regional anaesthesia in most urologic surgeries, it was concluded that in male patients significant penile tumescence occurred frequently **(Fyneface-Ogan & Ekeke, 2018)**.

EPIDURAL ANAESTHESIA AND ANALGESIA

This is another form of regional anaesthesia that has gained wide popularity in pain management, with regard to labour and childbirth or postoperative pain management, etc.

Identification of Epidural space

The gold standard for pain relief during childbirth is the use of epidural analgesia. However, the location of the epidural space for local anaesthetic injection could be a very challenging one. It is frequently described as one of the anaesthetists' "nightmare".

Anatomy of the Epidural space

The epidural space is one of the most explored areas of the human body. This exploration demands a good knowledge of the relevant anatomy and contents of the space. First described by Corning in 1901, the epidural space is an anatomic compartment between the dural sheath and the spinal canal. In some areas it is a real space and in others only a potential space (**Fyneface-Ogan, 2012**).

The modus of discovering the epidural space is dependent upon the negative pressure demonstrated during the introduction of the epidural needle into the space (e.g., hanging drop, Macintosh balloon, Vygon® Epidural Balloon). However, the two frequently used methods rely on loss of resistance to injection of saline, local anaesthetic or air as the needle advances through the ligamentum flavum and lodge the epidural space. Still, each of these techniques has its own advantages and disadvantages. Compared with air, loss of resistance to saline or local anaesthetic has the merit of giving a more patent tactile endpoint when the needle is situated within the epidural space. However, because saline is a clear fluid, it may be mistaken for cerebrospinal fluid and consequently, dural puncture

may be masked. It follows that large volumes of air or saline may result in inadequate analgesia or patchy block because of dilution.

Additionally, many methods have been used in the past to correctly identify the epidural space. Recently, we tested a modification of the Macintosh balloon and found it was quicker than traditional LOR **(Fyneface-Ogan and Mato, 2008)**. It consists of a Y-shaped connector attached to the epidural needle with one end having a balloon and the other end attached to a syringe for charging the balloon with air. This technique provides a visual cue on entering EDS and thus provides objective evidence.

Other methods such as the use of ultrasound guided technique, epidural space localisation with CO_2 and compliance, and the dual technique for identification of the epidural space have been tried at different times but with variable application by anaesthetist. It is cannot be disavowed that pressures applied on the plunger of the epidural syringe during space identification could be intermittent or continuous which also depends on the administrator.

The current incidence of inadvertent dural puncture (IDP) during epidural anaesthesia in obstetrics is about 1% with a possible postdural puncture headache. The IDP could be due to inability to correctly identify the end-point of the epidural space localisation. A study (**Fyneface-Ogan, 2014**) however was designed to find a better and more reliable method of identifying the epidural space. This study describes the sling-shot technique to identify pressure changes in the syringe during puncture of the ligamentum flavum in identifying the epidural space. Knowledge of pressure changes might be of help to the anaesthetist who attempts to ascertain the location of the needle tip using a designed sling-shot epidural syringe.

To design the sling-shot epidural syringe, the length and thickness and to determine force applied to the rubber band at the interface of the intra-epidural negative pressure. The sling-shot syringe is made

up of three parts namely; barrel, grooved plunger and a rubber band (see Figs. 1 and 2).

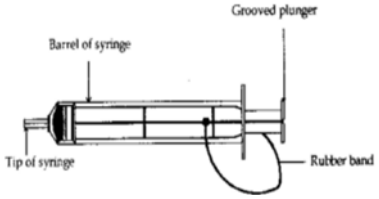


Figure 1: Showing syringe without plunger mounted rubber band

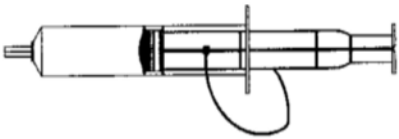


Figure 2: Showing pulled without mounted rubber band

The rubber band applies a continuous force on the plunger when the latter is pulled (see Fig. 3 below).

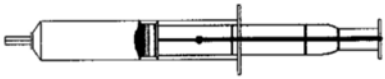


Figure 3: Showing pulled plunger with mounted rubber band

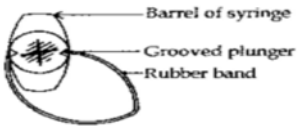


Figure 4: Showing proximal end (plunger base) of syringe

While Fig. 4 above shows the distal end of the syringe displaying the grooved plunger into which the rubber band fits; Fig. 5 shows the proximal end or the tip of the syringe

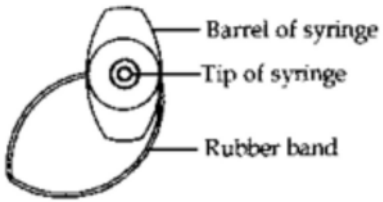


Figure 5: Showing distal end (tip) of syringe

The force applied on the rubber band was determined based on the Hooke's Law, which states that the extension of a spring is directly proportionate to the load applied to it - $F= k \Delta L$. Hooke's Law (below) is classically applied to spring systems. However, it can

also, to some extent, describe the stretch patterns observed for rubber bands.
F = Force applied to elastic material
k = spring constant
ΔL = change in length of the elastic material.

Where, F is the force applied to the rubber band, k is the spring constant and ΔL is the change in length of the rubber band. The spring constant is the constant that makes the Hooke's Law mathematically correct and is usually found by experimentation. So the more the rubber band is stretched the more force it applies to return to equilibrium. So intuitively the farther it is pulled, the farther it would go.

The mass of water needed to pull the rubber from an initial length of 0.075 m to 0.12 m to produce a 5 ml displacement of the syringe plunger is 0.1 kg. Therefore, the difference in ΔL from 0.075 to 0.12 m = 0.045m

Mass needed to change length = 0.100 kg
Weight = Mass x acceleration due to gravity = 0.100 x 9.8 = 0.98N
If $F = k \Delta L$, then $k = F/ \Delta L$
Therefore, 0.98/0.045 = 21.8 N/m
The spring constant (k) of the rubber band = 21.8 N/m
However, the pressure exerted by the plunger is calculated using: Pressure = Force (F) exerted by the plunger/Surface area (A) of the plunger. A 10-ml Becton Dickinson (BD) plastic syringe has a 1.45 cm-diameter plunger.

For the purpose of this study, the pressure exerted by the rubber band on the plunger is calculated in kilopascal (kPa).
It is important to note that the Atmospheric pressure = 740 torr = 101.3 kPa x (740 torr/760 torr) = 98.6 kPa.

The syringe plunger has an area A =JIr^2. Where JI = 3.142
A = (3.142) x (1.45/2)^2 = 1.60 cm^2.

This is an area of 1.60 cm^2 x (10^{-4} m^2/cm^2) = 1.60 x 10^{-4} m^2
The acceleration due to gravity is 9.8 m/s^2. Multiplying the mass (needed to cause a change in 0.045 m length of the rubber band) by the acceleration due to gravity gives the force (in newton).
F exerted by rubber band = (9.8 m/s^2) x (0.10 kg) = 0.98 N
Dividing the force by the area of the plunger face gives the pressure in Pascal.

Pressure (P) = (Force (F) exerted by rubber band/Area (A) of plunger) = (0.98 N/1.60 x 10^{-4} m^2) = 0.61 x 10^4 Pa or 6.1KPa or 45.75 mmHg

It is worthy of note that the pressure exerted on the plunger in the sling-shot plastic syringe (Becton Dickinson (BD)) described in this study was generated by the rubber band. Although the resistive (frictional) force was not determined, it has been shown in one study that a 10-ml BD syringe has a mean static (fs) force of 2.22 X 10(-3) +/- 0.48 X 10(-3) N and a mean dynamic force (fd) = 1.46 X 10(-3) +/- 0.37 X 10(-3) N; a value higher than that of a 10-ml glass syringe. It is concluded that glass syringes are favoured over plastic for locating the epidural space because frictional forces developed with glass syringes were significantly lower than with plastic.

Table: Characteristics of epidural space localization

Number (%)	Mean ± SD
Attempts at insertion	
1	28 (93.3)
>1	2 (6.7)
Duration to reach end point (secs)	17.3 (2.5)
Accidental dural puncture	-
Ease of passage of catheter	
Difficult	1 (3.3)
Easy	29 (96.7)

The study showed that the duration to reach the end point of correct space identification was 17.3 seconds. The passage of epidural catheter into the epidural space was easy in 29 out of 30 patients recruited into the study. It confirms that the sling-shot epidural syringe is a very valuable tool in the hands of the anaesthetist and further reduces the challenges fraught with the identification of the space.

With the increasing use of epidural techniques in the treatment of pain, the need for a more efficient technique in identifying the epidural space correctly cannot be overemphasized. The sling-shot epidural syringe provides a one-stop method of correctly identifying the epidural space. Although this study adds to the current knowledge on methods of epidural space identification, yet further studies may be needed. However this study has shown that the sling-shot syringe has great potential in facilitating the identification of the epidural space. The use of fluid (saline or local anaesthetic agent) could still produce the same effect with air. Again this still needs further evaluation.

THE BODY MASS INDEX AND DIFFICULT AIRWAY PREDICTABILITY

That difficult tracheal intubation is a common source of mortality and morbidity in surgical and critical care settings is not subject to disputation. Accordingly, the adverse events pertaining to difficult tracheal intubation are: hypoxic brain injury, cardiopulmonary arrest, rescue tracheostomy, airway trauma, aspiration, damage to teeth, and death, to mention just these ones.

Subsequently, various parameters have been interrogated in an attempt to ascertain a better predictor of potential difficult intubation. Despite that, there is no strong consensus and the results are still unclear on true predictors and criteria to be used to predict potential difficult laryngoscopies.

Nonetheless, notwithstanding the feeble unanimity and the opaqueness with respect to the true predictors, yet some anthropometric parameters (distances) have been implicated in predicting difficult airway and tracheal intubation. One of such distances is the thyromental distance. Thyromental distance (TMD) is measured along a straight line from the thyroid notch to the lower border of the mandibular mentum with the head fully extended and categorised as > 6.5, 6.0–6.5 or < 6.0 cm. The TMD gives us a clue regarding the mandibular space. In patients with a short mandibular space, the tongue cannot be accommodated anteriorly during laryngoscopy and is pushed posteriorly thus obscuring the glottic view. For practical purposes, a distance less than 3 finger breadths between the thyroid cartilage and the mandible is considered a depiction of a receding mandible. Different distances have been put forward, ranging from <6 to 7 cm but neither the Sensitivity nor the Specificity of TMD has been high enough to employ this landmark as the only predictor of a difficult laryngoscopy.

However, sternomental distance (SMD) is measured as the distance between incisura jugularis of the sternal bone and symphysis of the mandible with the patient's head in midline neutral position, neck fully extended and the patient lying supine. SMD may be a good denotation of maximum neck extension, thereby affording a more accurate appraisal of head extension than any other subjective evaluation and sidestepping the need for radiological examination which in fact is an infringement on patient's safety. Ramadhani and his colleagues (**Ramadhani et al, 1996**) have shown that SMD had a high sensitivity and specificity for predicting difficult laryngoscopy. Contrary to their observations that SMD was not affected by age, we found that the SMD measurements were affected both by age and sex (**Jaja & Fyneface-Ogan, 2011**). Although the BMI was statistically the same in both sexes, the SMD correlated positively with the TMD in both sexes ($r = 0.86$, $p = 0.005$ while BMI correlated negatively with SMD ($r = 0.166$, $p = 0.108$) as well as to the TMD ($r = 0.147$, $p = 0.04$) in both sexes. On account of that, we concluded that in young healthy adult populations the SMD and TMD are strongly related to each other

but unrelated to the BMI. In this study males tend to have an average longer SMD and TMD as compared to females. On the whole, this finding is very useful during pre-anaesthetic airway assessment of patients scheduled for surgeries under general anaesthesia.

OBESITY AND ANAESTHESIA

Obesity is a metabolic disease that is on the increase all over the world. There are several classifications and definitions of obesity; however, the one commonly adopted is the definition by the World Health Organization (**WHO, 1995**), which defines obesity as a body mass index (BMI) of 30 kg/m^2 or more. The extent of obesity is usually quantified through the body mass index (BMI), which is defined as the relationship between height and weight (weight in kilograms [kg]/height^2 in metres [m^2]).

Bray classified the BMI into five categories (**Bray, 1992**):
<25 kg/m^2 = normal,
25–30 kg/m^2 = overweight,
>30 kg/m^2 = obesity,
>35 kg/m^2 = morbid obesity,
>55 kg/m^2 = super morbid obesity

While about 35% of the population in North America and 15-20% in Europe can be considered obese, one systematic review by Chukwunonye et al. showed that the prevalence of overweight and obesity in Nigeria ranged from 20.3%–35.1%, and 8.1%–22.2%, respectively (**Chukwunonye et al, 2013**).

Since these patients are characterised by several systemic physio-pathological alterations, the perioperative management may present some problems, mainly related to their respiratory system. Body mass is an important determinant of respiratory function before and during anaesthesia not only in morbidly but also in moderately obese patients. These can manifest as:
(a) reduced lung volume with increased atelectasis;

(b) derangements in respiratory system, lung and chest wall compliance and increased resistance;
(c) moderate to severe hypoxaemia.

These physiological alterations are more marked in obese patients with hypercapnic syndrome or obstructive sleep apnoea syndrome.

Using a lifter to transport a patient facilitates patient safety and safeguards medical team members.
(*http://www.anesthesiologynews.com*)

Obesity is frequently associated with challenges during anaesthesia. To that end, the application of regional anaesthetic techniques for obese patients is increasing in popularity because it provides marked benefits in contrast to general anaesthesia for these patients. Indubitably, regional anaesthesia (RA) offers several advantages when treating obese patients, which include minimal airway intervention, less cardiopulmonary depression, improved postoperative analgesia, decreased opioid consumption, decreased postoperative nausea and vomiting (PONV), and therefore reduced post-anaesthesia care unit (PACU) and hospital length of stay. Moreover, RA has been associated with improved postoperative analgesia, particularly when long-acting local anaesthetics, or continuous peripheral nerve blocks, are used. However, regardless of the itemised advantages, RA can be technically challenging in the obese. These challenges have to do with difficulties in patient

positioning, identification of the usual bony and muscular landmarks, and the depth of needle penetration. Nevertheless, the drawbacks of regional anaesthesia and the technical problems encountered with its employment in obese patients must be circumspectly considered.

Showing the posterior view of the patient

To substantiate my stance on the cautious application of RA on obese patients, I want to cite an instance as regards one of the experiences we had with a 53 year old super morbidly obese female, total body weight 165 kg, with a height of 168cm (BMI=58.5), presented with a history of heavy menstrual bleeding and abdominal mass of 3 years duration (**Fyneface-Ogan, Abam & Numbere, 2012**). On account of the massive weight, heavy bleeding, uncontrolled hypertension and diabetes, the decision to operate was reached. Some of the problems associated with this were establishing a venous access, epidural block and transportation of the patient to the ward. One of the lessons learnt from the management of this patient was the response of the morbidly obese to the use of opioids for both intraoperative and postoperative pain management. While the use of spinal bupivacaine/fentanyl is encouraged to extend the duration of sensory block, its use in the

morbidly obese can be detrimental. The cephalad spread of opioids could potentiate an already existing obstructive sleep apnoea. Perioperative opioid-based pain management of patients suffering from obstructive sleep apnoea (OSA) may present challenges because of concerns over severe ventilatory compromise.

OSA has been described as a chronic inflammatory state and intermittent hypoxia seems to be causally responsible (at least partially) for this outcome through a complex scheme of positive interactions between upregulation of hypoxia-inducible factor 1 alpha and increased production of reactive oxygen species by mitochondria (**Lavie, 2003**). The inflammatory products of these reactions, such as IL-6, IL-1β, and TNFα have been shown to be both hyperalgesic **(Zhang & An, 2007)** and also potentiating the analgesic effect of opioids. Even though the molecular basis for the effect of intermittent hypoxia on opioid sensitivity is less clear, current experimental proof depicts that the two, seemingly contrasting, phenotypes of increased pain and enhanced opioid potency, as emergent outcome of intermittent hypoxia, are not mutually exclusive.

The administration of oxygen and sedatives may stabilise ventilatory control and benefit OSA patients with increased chemosensory sensitivity and low arousal thresholds, whereas the same therapeutic measures could prolong the duration of airway obstruction, potentially leading to severe hypoxemia, in patients with decreased ventilatory responses to hypoxia/hypercapnia and high arousal thresholds. Irrespective of the fact that this last group of patients exemplifies a minority among OSA populations, still they might be at a greater risk for opioid-related respiratory events in the postoperative period because of their profound heavy reliance on arousal to reanimate adequate airflow and oxygenation. Opioids, by constraining chemical, behavioural, and motor control of respiration, could in addition increase arousal thresholds; extend airway obstruction, and accelerate hypoxemia.

CRITICAL INCIDENCE AND ANAESTHESIA

Patient's safety is the cornerstone of good patient care. This is especially important in the operating room setup. Reporting of critical incidents and near misses is an established method of improving patient safety. In recent years, in spite of low mortality, anaesthesia is still associated with significant morbidity. There appears to be considerable conformity that anaesthesia risk is an important public health concern and that it is reducible. Further, there is reason to believe that a substantive portion of that risk is related to human error resulting from errors in management or deviation from accepted practice. If the frequency of error has to be decreased, a clearer understanding of that process is needed, the circumstances that encourage error should be identified and the relative frequencies of different classes of errors should be established.

Medication errors are common in anaesthesia. Some of the predisposing factors include fatigue on the part of the anaesthetists, poor vision, illegible inscriptions, and different medications with the same design on vials or ampoules (leading to swapping). The consequences of these errors could be far reaching with undesirable outcomes ranging from prolonged hospitalisation to permanent disability or death (**Cooper et al, 2002**). The incidents may be due to human, mechanical errors or both and, sometimes following deviation from standard processes. We reported a series of drug errors in anaesthesia following a change in packaging of routine anaesthetic agents without notifying the end-user anaesthetists (**Mato and Fyneface-Ogan, 2003)**.

WHO THEN IS AN ANAESTHESIOLOGIST OR ANAESTHETIST?

An anonymous advocate stated that "***If surgeons are the blood, anaesthetists are the brains***." If this is true, then it is apt to argue that an anaesthesiologist is both blood and brain! The Anaesthesiologist is also known as a perioperative Physician ("peri-" meaning "all-around") who is obligated to make available medical care to each patient throughout his or her surgical experience. The

Anaesthetist is expected as part of his/her medical care to take into account a thorough assessment of the patient's condition before surgery (preoperative), coupled with a consultation with the surgical team, and offering a balanced advise, not forgetting to provide pain control and supporting life functions during surgery (intraoperative), supervising care after surgery (postoperative), discharging the patient from the recovery unit and managing postoperative pain.

Anaesthesia as a faculty has grown tremendously over the years after the first public demonstration of the administration of an anaesthetic by William Morton in 1846. Traditionally, the role of the anaesthesiologists has been viewed as ***behind the screen specialty*** and it is only in the last few decades, this specialty has grown beyond the four walls of the operation room and the role of the anaesthetist is being increasingly appreciated in pain clinic, labour room, accident and emergency and intensive care unit.

Anaesthesia is the art and science of relieving pain during surgery and safety is the most important priority achieved through eternal vigilance (**Uma and Hanji, 2013**). The general population's view about the role of the anaesthetist is relatively poor. There have been surveys conducted on general public to assess knowledge of anaesthesia and the role of anaesthetists before (**Edomwonyi et al, 1997 and Naithani et al 2007**). Our study showed that most of the patients were not aware of the role of anaesthesia, types and techniques of anaesthesia, and the role of anaesthesiologists inside and outside OT despite the fact that most of them had previous surgery. Although this could be attributed to their lower level of formal education, the fraternity of anaesthesiologists has a very important responsibility to educate patients and surgeons about the role of anaesthesia, types, techniques, benefits, and also the very crucial role played by anaesthesiologists inside and outside operating theatre.

Being primarily a surgeon, the anaesthesiologist has a good measure of knowledge of surgical extirpations. Many anaesthesiologists have been involved in the development of surgical devices and themselves assisted in many surgeries.

The anaesthesiologist plays a very vital role in the management of both surgical and non-surgical patients. Some of the roles played by the anaesthesiologist include preoperative evaluation, intraoperative care, postoperative care and postoperative pain management, management of critically ill patients in the ICU, pain management during labour and childbirth, pain clinics, etc.

Preoperative Evaluation

The role of Anaesthesiologist's is very crucial because it is his/her duty to establish the patient's readiness for surgery. With a unique advantage of advanced intellectuality of both the medical illnesses a patient undergoing surgery may suffer, as well as the effects on the body of the specific operation to be performed, it is evident that the role of the Anaesthesiologist is indispensable. The anaesthesiologist'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). In all cases however, the Anaesthesiologist 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.

Intraoperative Care

It is estimated that nearly 500, 000 anaesthetics (both minor and major anaesthetics) are administered each year in Nigeria. Anaesthesiologists provide or participate in more than 70-90% of these procedures. In the operating room, the anaesthesiologists are responsible for the medical management; sometimes suggest techniques in difficult surgical situations to the attending surgeon and provide anaesthetic care of the patient throughout the duration

of the surgery. The attending anaesthesiologist must carefully match the anaesthetic needs of each patient to that patient's medical condition, responses to anaesthesia and the requirements of the surgery.

The anaesthesiologists have important functions outside of the operating room, but the majority of their vital work takes place in the surgical suite. Their main roles during surgery are:

- Provide continual medical assessment of the patient
- Monitor and control the patient's vital life functions, including heart rate and rhythm, breathing, blood pressure, body temperature and body fluid balance
- Control the patient's pain and level of consciousness to make conditions ideal for a safe and successful surgery

Delivery (Labour Room) Suite

It is very common for anaesthesiologists to provide expectant mothers with pain relief during labour and delivery. While many mothers choose to use natural childbirth techniques, the demand for pain relief for labour and delivery has increased dramatically over the last several years due to the proven safety and benefits of this resource.

During childbirth, the anaesthesiologist manages the care of two patients, providing effective pain relief for the mother while maintaining a high degree of safety for her unborn child. In the event of an emergency Caesarean section, the attending Anaesthesiologist provides surgical anaesthesia while managing the life functions of both the mother and the baby.

The Post-anaesthesia Care Unit (PACU) or "Recovery Room"

After surgery, patients are transferred to the PACU, where they continue to emerge from the effects of anaesthesia under the watchful eyes of the anaesthesiologist. Evidence of recovery is continuously monitored, including activity level, adequacy of breathing, circulation, level of consciousness and oxygen saturation,. Likewise pain control is optimised. In most cases, the

anaesthesiologist decides when the patient has recovered enough to be sent home following outpatient surgery or has been stabilised sufficiently to be moved to a regular room in the medical facility or transferred to an intensive care unit.

Critical Care and Trauma Medicine

As an outgrowth of the PACU, critical care units are now found in all major medical facilities throughout the United States. Anaesthesiologists are exceptionally qualified to coordinate the care of patients in the intensive care unit because of their extensive training in clinical physiology/pharmacology and resuscitation. Some anaesthesiologists pursue advanced fellowship training to subspecialise in critical care medicine in both adult and paediatric hospitals. In the intensive care unit, they direct the complete medical care for critically ill patients. The role of the Anaesthesiologist in this setting includes the provision of medical assessment and diagnosis, respiratory and cardiovascular support, and infection control.

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

Anaesthesia outside the operating room

Just as medical technology has advanced, by the same token, so has the need for anaesthetist to become involved in taking care of patients during uncomfortable or prolonged procedures in locations outside the traditional operating suite. These procedures include radiological imaging, gastrointestinal endoscopy (**Ray-Offor and Fyneface-Ogan, 2017**), placement and testing of cardiac pacemakers and defibrillators, lithotripsy and electroconvulsive therapy. In most institutions, anaesthesiologists are available during cardiac catheterizations and angioplasty procedures should emergency airway management or resuscitation become necessary.

It would be impossible to perform many of these tests on infants and young children without the use of anaesthesia or various sedation techniques provided by an anaesthetist.

Pain Medicine
Because of their specialty training and vast experience in controlling pain during surgery, anaesthesiologists are uniquely qualified to prescribe and administer drug therapies or perform special techniques for acute, chronic and cancer pain. Here are two of the most common areas in which anaesthesiologists treat pain:

Acute Pain Management
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 postoperatively. Consequently, surgeon anaesthesiologists are responsible for ensuring that a patient's pain is under control before they are discharged from the PACU. Anaesthesiologists may prescribe specific pain medications or perform specialised procedures to maximise patient's comfort, which helps to minimise stress on the patient's heart and blood pressure. The techniques that are best suited for each individual patient are chosen to allow for proper rest and healing.

Chronic and Cancer Pain Management
Anaesthesiologists are the vanguard of those who are developing new therapies for chronic pain syndromes and cancer-related pain. Anaesthesiologists who specialise in the treatment of chronic pain often dedicate their practices exclusively to a multidisciplinary approach to pain medicine, working collaboratively with other medical specialists in a pain clinic.

Ambulatory and Office-Based Anaesthesia
The number of operations carried out in ambulatory surgical centres and doctors' offices continues to rise, while most of the patients who are treated in these facilities are from an increasingly elderly population with more complex medical problems. Subsequently, patients deserve the same high standard of care in these facilities

that they receive in the hospital setting. Anaesthesiologists are working with federal and state legislators and agencies and collaborating with other physicians and accrediting bodies to establish safety standards for such facilities.

Operating Room Management

Besides the provision of patient care, the anaesthesiologist oftentimes is responsible for the management of the resources of the operating suite, in addition to the efficient use of operating rooms, supplies, equipment and personnel. Unlike most surgeons, who spend much of their time seeing patients in private offices, anaesthesiologists work in the operating suite every day. Given this, their continuous presence, along with their wide-based appreciation for the needs of surgeons and other physicians who perform procedures requiring anaesthesia, uniquely qualifies anaesthesiologists for leadership positions in operating room administration and management.

Basic Science and Clinical Research

Some of the most significant strides in medicine and surgery are directly attributable to anaesthesiologists' advances in patient monitoring, improved anaesthetic agents and new drug therapy. Anaesthesia research at the clinical and basic science levels has been completed almost exclusively by anaesthesiologists or Ph.D. scientists with the goal of continually improving patient care and safety. Research is conducted in each of the subspecialties of Paediatric, Geriatric, Obstetric, Critical Care, Cardiovascular, Neurosurgical and Ambulatory Anaesthesia. Other areas of active study include blood transfusions and fluid therapy, infection control, difficult airway management, cardiopulmonary resuscitation, complications, new devices and methods of monitoring, pharmacology, patient safety, pain therapy and organ transplantation.

Without the significant input of the anaesthesiologists certain surgeries may not have been possible. There has been an increasing tendency for patients with a definitive diagnosis of phaeochromocytoma to be referred to specialist endocrine surgeons, who in turn work with anaesthesiologists with specialist experience, and this can only be beneficial for such patients. Few anaesthesiologists have substantial experience of anaesthetic management of patients with phaeochromocytoma. Pheochromocytoma although rare, presents challenges for the anaesthesiologist. By some estimates, 25 to 50 percent of hospital deaths of patients with unmanaged or unknown pheochromocytoma occur during induction of anaesthesia or during operative procedures for other conditions. Since treatment of phaeochromocytoma almost always includes surgical resection, most of these patients will require anaesthesia. While 10% of pheochromocytomas are extra-adrenal, still 10% are malignant.

Currently, there is no effective cure for malignant pheochromocytoma. There are also no reliable histopathological methods for distinguishing benign from malignant tumours. Instead, malignancy requires evidence of metastases at non-chromaffin sites distant from that of the primary tumour. Although extensive invasion of adjacent tissues can be considered an indicator of malignant potential, local invasiveness and malignant disease are not necessarily associated. The presence of metastases provides the only currently widely accepted means to define malignant pheochromocytoma. In one case of malignant phaechromocytoma with multiple deposits on the mesentry, liver and some parts of the stomach, a monoblock resection was performed through meticulous anaesthetic and surgical skills (**Jamabo, Fyneface-Ogan & Eke, 2003**). In another experience, the tumour was solely suprarenal and was removed by simple excision (**Fyneface-Ogan, Elenwo & Omodu, 2006).**

INNOVATIONS IN SURGERY

While, various types of surgical drains have been used for different surgical interventions for many years (**Memon, Memon & Donohue, 2001**), yet, it is often questionable whether they accomplish their intended purpose despite many years of surgery. Withal, there is a dearth of evidence regarding the advantage of many types of surgical drainage, besides many surgeons still adhere to their usual practice. However, with better evidence, the management of surgical patients is expected to improve and consequently, surgeons in turn should be able to adroitly practise, as a result of the discovering, sound scientific principles rather than holding fast to their individual mottoes: "How I do it".

It should be noted that the aim of using a surgical drain is to decompress or drain either fluid (blood, pus, and infected fluid), air from the surgical field (dead space) or to characterise fluid (for example, early identification of anastomotic leakage (**Makama & Ameh, 2008**). As such, surgical drains eliminate content of body organs, secretion of body cavities and tissue fluids such as blood, serum, lymph and other body fluid that accrue in the wound bed following surgical procedures. Per se, the reduction of pressure to surgical site, including the adjacent organs, nerves and blood vessels, improves wound perfusion and wound healing. Additionally, reduction of pain is also achieved. However, in spite of its benefits, it has been discovered that drains are not to be innocuous particularly when they are poorly selected, used wrongly, and left in situ for too long. Importantly, passive and active drains are the most practically useful type. As such, it is therefore apparent that comprehending the advantages and the usage of surgical drains and tissue responses to constituent material is not only apropos to a practicing surgeon but would help in the reduction of surgical drain abuse.

Specific examples of drains and operations where they are commonly used include:

- Plastic surgery, including myocutaneous flap surgery
- Breast surgery (to prevent collection of blood and lymph)
- Orthopaedic procedures (associated with greater blood loss)
- Chest drainage

- Chest surgery (with, for example, the associated risks of raised intrathoracic pressure and tamponade)
- Infected cysts (to drain pus)
- - Pancreatic surgery (to drain secretions)
- Biliary surgery
- Thyroid surgery (concern over haematoma and haemorrhage around the airway)
- Neurosurgery (where there is a risk of raised intracranial pressure)
- Urinary catheters
- Nasogastric tubes

There are two types of surgical drains; they can either be **open** or **closed**:
Open drains incorporate corrugated rubber or plastic sheets; these type drain fluid on to a gauze pad or into a stoma bag. However, its application tends to increase the risk of infection. On the contrary, closed drains are fashioned by tubes draining into a bag or bottle. Instances are chest, abdominal and orthopaedic drains. Unlike the open drain, the risk of infection is reduced.

Active or passive: While Active drains are maintained under suction, which may be low or high pressure; whereas Passive drains have no suction and work according to the differential pressure between body cavities and the exterior.

We have described a novel closed passive surgical drain using the uribag (**Fyneface-Ogan & Jebbin, 2007**). In this prospective study of the use of uribag as a drain (Figure 1), examination was carried out in 104 consecutive surgical and gynaecologic patients.

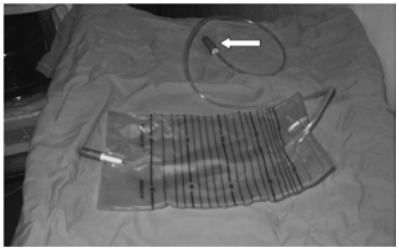


Figure 1: Uribag drain showing the blue tip

Figure 2: Blue tip of uribag being cut-off

The drain was prepared by cutting off the blue tip of the uribag as shown in Figure 2 below. Two to four fenestrations, 2 cm apart, were made in the opposite sides of the cut end of the tubing shown in Figure 3.

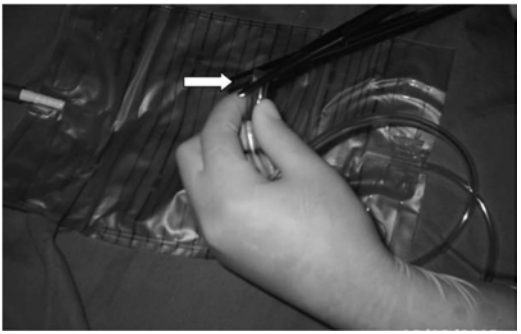


Figure 3: Fenestrations being made on tube of uribag

A 1 cm stab incision was made on the skin. With the aid of an artery forceps passed from inside the cavity, the tube drain was pulled through the incision into the cavity or tissue bed to be drained (Figure 4).

Figure 4: Improvised drain prepared tube with fenestrations

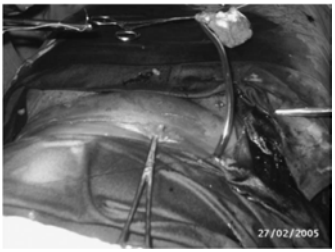


Figure 5: Drain tube being anchored

It was anchored to the skin with the aid of nylon 0 suture (Figure 5). The collections into the bag were emptied as necessary, with the volume being noted. The drain was retained until it was no longer necessary, as judged by the quantity of the effluent (about 50–100 ml). The drain was pulled out after cutting the anchoring suture. This improvised drain has been used for a variety of surgical procedures and found to be very safe, efficient, simple, cheap and readily available (Figure 6).

Figure 6: Improvised surgical drain in action

Finally Mr Vice Chancellor Sir, every year we celebrate **MOTHERS' DAY** yet minimal efforts are made to relieve the extreme pain and discomfort these women experience during the long hours of labour and delivery. The greatest gift that can be given to the parturient is to relieve her of the **PAIN OF CHILDBIRTH.**

RECOMMENDATION

The following recommendations are made:

1. While it is imperative that every pregnant woman registers with an approved facility with modern equipment to have a safe labour and childbirth, the Federal, State and Local Government should increase the budget on health with a target at reducing the current horrendous figures of maternal morbidity/mortality rates.
2. Government at all levels should make legislation for the affordability, accessibility and availability of safe and painless labour and childbirth.
3. A stringent law and legislation should be passed to enforce the prevention of prayer houses and other religious homes from being involved in the management of the processes of childbirth.
4. More funding should be made available to train more Anaesthesiologists involved in painless birthing processes; truly ***the harvest is plenty but the workers are very few!***
5. There is an urgent need to commence an anaesthesia clinic to educate, evaluate and make various options of anaesthesia care available to parturients preparing for labour and delivery.
6. We are all products of very painful labour and delivery, therefore it should be a collective responsibility (involving the academia, politicians and other decision- makers) to reduce the burden on the ***LABOUR-ER***.

CONCLUSION

Childbirth, however fulfilling, is a very painful experience for the majority of women. In the Holy Book, John 19: 30, Jesus said, "***It is finished"***. Therefore, it is no longer a **curse** to have a painful labour and delivery. By all means the pain of labour and delivery should be

relieved. It is rather a fundamental right of every labouring woman to receive adequate pain relief during this travailing hour.
During the antenatal period, women should be educated about the need for labour pain relief and the available options. This may be done at an appropriate time during the antenatal visits by the obstetrician or Anaesthetist. The pregnant women's knowledge may also be improved by the provision of information leaflets, labour pain websites and childbirth preparation classes. A proper legislation is urgently needed to make this all important aspect of clinical care available to the parturient.

Mr. Vice Chancellor Sir, there is an urgent need to give opportunity to more Anaesthesia lecturers to train in this area of anaesthesia sub-specialty. ***The harvest is inundating but the labourers are few***!
Thank you for the audience.

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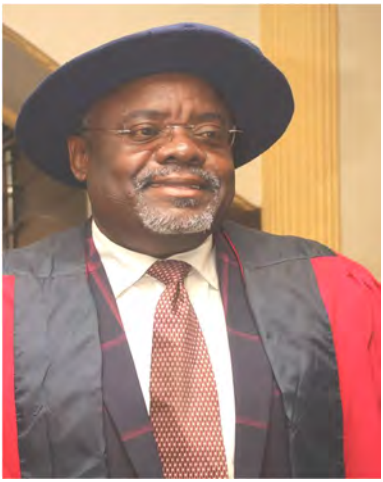

PROFESSOR SOTONYE FYNEFACE-OGAN
(B.Med.Sc; MB, BS; PgDA; FWACS; Fellow OB Anaesth & Pain Mgt. (WFSA- ISRAEL); FICS.

Distinguished ladies and gentlemen, I feel both honoured and privileged to stand before you all today, to read the citation on this distinguished Inaugural Lecturer.

Born 55 years ago, Professor Sotonye Fyneface-Ogan is the third child and only son of his parents, Late Elder Fyneface Sotonye-Ogan and Late Madam Elizabeth Fyneface-Ogan all of Ogan Ama, Kirike Town, Okrika Local Government Area, Rivers State. The uncompromising principles of this couple shed a bright light on the path of growth and development of this scholar.

In the judgment of many (then) the acquisition of a sound education was the prerogative of the parents only and was adjudged to be a wasted exercise or at least expensive. Fortunately, the dauntless Late Elder Fyneface, in active conjunction with his amiable wife, Late Madam Elizabeth, in their wisdom held differently. With self-propelled audacity dared the crusaders of such persuasion. The young lad, the man in whose honour we are here gathered today for history, for his inaugural lecture was enrolled to commence his

primary education at the St. Agnes Primary School, Ogan Ama, Okrika in January 1969.

As if to prove them (husband and wife) wrong in their conviction and or vision for education, the reverberation of the Nigerian Civil War, which broke out in 1967 and engulfed the entire Niger Delta region was to truncate their foresight vis-á-vis their only son's education. Unfortunately nay, his parents were resolute. They would not budge. He was transferred to the St. Mary's Primary School, Aggrey Road, Port Harcourt in July 1969. God in his infinite mercy proved Himself. He diligently concluded his primary education with flying colours in July 1974.

The man, Prof. Fyneface-Ogan with profound industry for education sat and passed the secondary school entrance examination. Again, was enrolled into the Government Secondary School, Ogu. He later changed and completed his Secondary School education at the Nyemoni Grammar School, Abonnema in 1979. Further, his far-sightedness and tenacity for education earned him admission at the highly esteemed Baptist High School, Port Harcourt, where he sat and obtained his Higher School Certificate (HSC) in 1981.

In all naturalness, he loathed the diet of idleness so; it was no news when he took up employment with the Nigerian Ports Authority, albeit briefly as an Audit Clerk in 1981 – 1982.

Prof. Fyneface-Ogan was admitted to read Medicine and Surgery at the University of Port Harcourt Medical School in November 1982. In the process of this quest, he also obtained a Bachelor of Medical Science degree in Human Physiology in 1986 and finally, graduated from the Medical School with Bachelor of Medicine and Bachelor of Surgery degrees in August 1989.

Following the completion of the rotatory Housemanship in 1990, he went on to undergo the one year mandatory service with the National Youth Service Corp (NYSC) at Fufore, Gongola (now Adamawa State). During the service year, he conducted himself

extremely well having already imbibed good manners and positive attitude to hard work; he served meritoriously and completed his national assignment with an award as the **BEST CORPER** at the Orientation Camp by the Director NYSC in April 1990 and **BEST YOUTH CORPER** by the Governor of the then Gongola State in 1991.

He joined the services of the University of Port Harcourt Teaching Hospital in 1992 as a Medical Officer in the Department of Anaesthesiology where he worked for 5 years. Following his unquenchable thirst for higher education, he got admitted into the postgraduate training programme in Anaesthesiology in 1996 and graduated with a Postgraduate Diploma in Anaesthesiology (PgDA) at the University of Benin in 1997. Immediately after his graduation, he enrolled into the residency programme at the University of Port Harcourt Teaching Hospital (UPTH).

Following the conclusion of his training and having satisfied the professional and academic requirements and, success in the final Examination of the Faculty of Anaesthesia, West African College of Surgeons, he obtained the Fellowship in Anaesthesiology (FWACS) in 2004. This crowning glory in academia does not come on a platter of gold but rather by sheer determination and hard work.

His unending quest for further education also made him earn a scholarship awarded by the World Federation of Societies of Anaesthesiologists (WFSA) to study and, obtained a post Fellowship in Obstetric Anaesthesiology and Pain Management at the Edith Wolfson Medical Centre, Holon, Israel in 2008.

Pulling himself up by the bootstraps, this resourceful Medical Practitioner has been working at the University of Port Harcourt Teaching Hospital as a Senior Consultant Anaesthesiologist and a Lecturer at the University of Port Harcourt Medical School since 2005. In 2012, he was also awarded the Fellowship of the International College of Surgeons (FICS).

Prof. Fyneface-Ogan has many academic publications to his credit. Some of his innovations and scientific inventions are "**Ogan-Jeb's surgical drain**" (which earned the University of Port Harcourt, the 3rd position at the All Nigerian Universities Medical Research Fair) and "**Ogan's sling-shot Epidural syringe**" (which earned the best research innovation award at the 3rd West African Confederation of Societies of Anaesthesiologists), an international award. These medical devices are currently in use all over the country and beyond.

Prof. Ogan has served in many capacities both in his community and, the church where he serves as a Lay Reader in the Anglican Communion. During his study in Holon, Israel he used the opportunity to embark and complete the Holy Pilgrimage to the most revered and holy sites in Israel and Palestine in 2008. On his return from the post-fellowship training, he was appointed the Acting Head of Department of Anaesthesiology in 2010. He was the Project Manager of the Theatre Revolving Fund at this period. During his tenure, which lasted for over 66 months the department experienced an enormous transformation that charted the path to huge success of candidates at various levels of the fellowship examinations. He exhibited exemplary leadership that brought the department to an enviable height both in the University and hospital. Prof. Fyneface-Ogan served the Faculty of Clinical Sciences at various levels;

1. Faculty Representative at the Graduate School,
2. Secretary, Faculty Building Committee,
3. Secretary, Faculty of Clinical Sciences Research and Training Committee

He is a Senior Examiner of the Faculty of Anaesthesia, West African College of Surgeons. This scholar is the founder and the current National President of the Society of Obstetric Anaesthetists of Nigeria (SOAN) an affiliate of the Nigerian Society of Anaesthetists. He is a member of the Nigeria Medical Association (NMA), Nigeria Society of Anaesthetists (NSA), West African Confederation of Societies of Anaesthesiologists (WACSA), Medical and Dental Consultants Association of Nigeria (MDCAN)

and International Society for the Study of Pain (ISP). He is the current Secretary-General of Kirikese Medical Doctors Association Worldwide, a position he has held for about 8 years and the immediate past Chairman of Adokiye Community, Abuloma.

He is a repository of knowledge in Okrika culture and the dynamics of peaceful co-existence. He is an embodiment of humility, radiates warmth, strength, love, and sound brilliant mind. He has a pedigree that has steeled his resolve and proved his resilience. His dreams are limitless. His vision and celebration of initiative, his insistence on hard work and personal responsibility are constant in his character. Reflections from these qualities endeared him to his people to install him as the 10th traditional ruler of Ogan Ado of King Ado Dynasty of Okrika, a traditional stool that is about 200 years old. Installed and admitted into the Okrika Divisional Council of Chiefs as OGAN X (***Ogoriya Woma X***) in November 2014, he is also a member of the King Ado Royal Council of Chiefs and Kirike Divisional Council of Chiefs (KDCC).

He is married to **Mrs. Gloria Sotonye-Ogan**. The marriage is fruitful with two female children **Soala Sotonye-Ogan** and **Orafiribakame Sotonye-Ogan**.

Colleagues, Ladies and Gentlemen, I present to you an honest gentleman, a Researcher in Clinical Medicine, a Teacher, a Church Worker, a Father, a Traditional Ruler and Scholar, Professor Sotonye Fyneface-Ogan.

Professor Ndowa E.S Lale
Vice Chancellor