“Superficially Obstetric Anaesthesia appears to be a simple field with a limited range of interest but it is a deceptively demanding specialty. Not only are two patients involved in each anaesthetic administration, but also the dynamic events of normal labour require that the muscles concerned with delivery retain their power and coordination to the full.”

- Philip Bromage

"Ahh……..Ohh……..What a pain is this? Why is nobody caring for me?" - The lady in the labour room was shouting with pain. But, the people outside the labour room were not at all worried. They were only worried about the overall welfare of the lady and the baby.

The times have changed now. There are techniques available which can relieve the labour pains effectively without any serious complications. Labour pains are physiological. It is present in all animals, hence is an accepted eventuality after pregnancy. According to our textbooks of physiology - Pain is an Essential Enemy - Whenever we step on a thorn we by reflex, withdraw from the stimulus. Thus pain warns us against inherent dangers of a painful incident. Hence it can be termed as a protective phenomenon.

Fortunately labour pains do not have any physiological significance other than warning the woman of the onset of labour forcing the mother to move to a protective environment. Hence, relief of labour pains does not come in the way of any physiological phenomenon.

HISTORY

It is the history of the entire universe which is also the history of labour pains. It is nature’s creation. From time immemorial, man is trying to get a good control over labour pains. In the ancient literatures of India and Greece there is sufficient evidence to say that there were efforts to control labour pains and give the labouring mother the due comfort.

Thanks to WTG Morton, who on 16th October, 1846, introduced Ether to clinical anaesthesia, a well developed specialty "Anaesthesiology" is in existence for over one and a half centuries now. Later it was James Young Simpson in early 1847 who used Ether in the control of labour pains. For the next few years, there were a lot of ethical, moral and religious concerns over the control of labour pains. But, Queen Victoria asked for labour analgesia in 1854 and Simpson administered chloroform on her, during the birth of her eighth child, Prince Leopold. She had perfect pain relief and described it as a boon to womanhood. Later, in the very next year she again asked for labour analgesia during the birth of her ninth child and thus labour analgesia got a Royal Stamp.
As the foetus starts growing during the entire length of pregnancy the uterus also expands to accommodate the growing foetus, placenta and the amniotic fluid. But the cervix (the mouth of the uterus) remains closed till the onset of labour. At term, sudden changes in hormonal levels take place for some unknown reasons and because of these sudden changes, in the hormonal levels the mother goes into labour. The uterus starts contracting over the foetus bathed in the amniotic fluid in an attempt to expell it. But the cervix is still closed. Over the next six to eight hours the cervix gradually dilates to an extent as to allow the foetal head to pass through the birth canal. Lastly, the placenta is expelled.
The entire labour is divided into three stages

1. First Stage: - From the onset of labour to the complete cervical dilatation.
2. Second Stage: - From the complete cervical dilatation the delivery of the baby.
3. Third Stage: - From the delivery of the baby to the delivery of the placenta.

During the first stage, the labour pains are due to

1. The contraction of the uterus over the foetus with a completely or partially closed cervix.
2. The process of cervical dilatation by stretching.

During the early stages, the contraction of the uterus is less frequent (once in five to ten minutes) and less intense. But after partial dilatation of the cervix (> 3 cms) it becomes more and more frequent (once in two to three minutes) and increasingly more intense.

During the second stage, the pain of contraction of the uterus still remains and added to it the stretching of the perennial structures becomes excruciatingly painful as the baby starts descending through the birth canal.

The third stage of labour is less painful than the other two.

EFFECTS OF LABOUR PAIN ON THE MOTHER

During late pregnancy, as the labour approaches, the mother becomes increasingly anxious about the pains. This anticipation of labour pains itself can have many deleterious effects like premature onset of labour, premature separation of the placenta etc.

During labour, labour pains release catecholamines into circulation and this leads onto incoordinate uterine contractions. This probably delays progress of labour and is one of the reasons why the active phase of the first stage of labour is hastened by epidural analgesia. The labour pains are “Crescendo Pains” which increases in intensity with each pain and the anticipation of the next excruciating pain between contractions causes more mental trauma.

DIFFERENT TECHNIQUES AVAILABLE FOR LABOUR ANALGESIA

- TENS
- Psycho prophylaxis - Lamaze Technique.
- Systemic Analgesics.
- Opioids
  - Morphine
  - Pethidine
  - Tramadol, Butorphanol, Pentazocine, Buprenorphine, etc.,
  - Fentanyl, Sufentanyl, Alfentanly
- Barbiturates
- Benzodiazepines
- NSAID's
Spasmolytics
- IV Anaesthetics – Ketamine
- Inhalational Anaesthetics
  Entonox
  Savofluorane, etc.,

Regional Techniques
  Lumbar Epidural Analgesia.
  Spinal Analgesia.
  Combined Spinal Epidural Analgesia.
  Lumbar Sympathetic Block.
  Pudendal Nerve Block, Paracervical Block, Perennial infiltration.

1. **Lamaze technique**: This is no analgesia but it is the mental preparation of the patient to accept the pains and modification of her response to pain. This technique is useful only in about 2% - 3% of labouring women and many studies have undoubtedly disproved its efficiency.

2. **Systemic Analgesics**:
   - Opioids – Inj Pethidine
   - Inj Morphine etc.,
   These are the most popular methods among the obstetricians merely because the ease of availability and the ease of administration. They do cause some respiratory depression in the newborn but it is rare, hence they are reasonably safe. But, the pain relief achieved is far from adequate.

3. **Entonox**: A 1:1 mixture of oxygen and nitrous oxide premixed in a cylinder for administration via a specialized instrument. This is very popular in UK among the midwives, again because of the ease of administration but, the efficiency and safety are not to acceptable standards.

4. **Neuraxial Blocks**:
   - Spinal Analgesia
   - Epidural Analgesia
   - Combined Spinal and epidural Analgesia

During labour, pain impulses from the uterus, cervix and the structures of the birth canal pass through the sympathetic nerves and the peripheral nerves into the spinal cord and ascend to the higher centres in the brain where they are perceived as labour pains.

In Neuraxial blocks we use some drugs at the level of spinal cord which block this transmission of pain impulses to the brain so that even in the presence of uterine contractions the mother does not feel the pain. So, "Labour Pains" and "Uterine Contractions" are not synonymous and it is only the uterine contractions that are essential for the birth of the child and not the Labour pains.

1. **Spinal Analgesia**: Here we deposit a local anaesthetic in the subarachnoid space where the Cerebrospinal fluid is present. The action is instantaneous but is difficult to maintain pain relief constantly.
2. Epidural Analgesia: Here we deposit the drug in the epidural space which is outside the subarachnoid space and it is easy to place a catheter here so that the drug can be delivered continuously or repeatedly so that the pain relief can be effectively managed as long as the labour lasts.

Epidural block is given in the lower back. You will either be sitting up or lying on your side. The block is administered below the level where the spinal cord ends (below L₁). This is called Lumbar Epidural Block. The block can also be given in tail bone area. This is called the Caudal Epidural Block.

Before the block is performed the patient’s skin will be cleaned with an antiseptic solution (eg: Povidone Iodine). The Anaesthesiologist uses a local anaesthetic to numb an area of your lower back. A special needle (Toughy needle) is placed in the epidural space which is just outside the spinal sac. A tiny flexible tube called the Epidural Catheter is inserted through this needle. Occasionally, the catheter will touch a nerve, causing a brief tingling sensation down the leg.

Once the catheter is positioned properly the needle is removed and the catheter is taped in place. A local anaesthetic and a narcotic mixture as decided by your Anaesthesiologist is injected into the epidural space through this catheter. Additional doses can also be given through this same catheter without another needle being inserted.
How soon will the epidural act?
Pain relief will begin to occur within 10-20 mins after the local anaesthetic mixture is injected.

What will one feel after the block takes effect?
Significant pain relief is achieved very soon. It is near 100% in more than 90% of women and the pain relief is more than 90% in 98% of the parturients. One may feel the contractions in the form of tightness of the abdomen or an increased pressure in the abdomen. The mother may feel the Obstetricians examinations also. The Anaesthesiologists adjusts the degree of numbness for your comfort and also to assist the progress of labour. One may notice some degree of numbness, heaviness or weakness in the legs.

3. Combined Spinal Epidural Block: Here a local anaesthetic drug is placed in the subarachnoid space to get a prompt and instantaneous effect and also an epidural catheter is placed to get a prolonged and continuous pain relief.

What is Walking Epidural?
When local anaesthetics are administered in the epidural space they not only block the pain impulse transmission but also block the motor fibres supplying the muscles in that area. This causes weakness or sometimes total paralysis of the muscles below the umbilicus temporarily, which gets corrected after some time. But, this itself is disadvantageous in some ways:

a. The mother cannot sit up or walk to the toilet during labour.
b. The mother cannot push the baby voluntarily during the second stage thus increasing the instrumental deliveries.

This was the situation a few years ago when the Anaesthesiologists were using high concentration of local anaesthetics (>0.125% Bupivacaine) and narcotics were narcotics were not in use. But nowadays we use a combination of a very weak
solution of a local anaesthetic (0.0625-0.1% Bupivacaine) with a powerful narcotic like Fentanyl or Sufentanyl which produces intense pain relief yet maintaining the muscle power so that the mother can be ambulant during early labour and also can push during delivery. This technique is popularly known as “Walking Epidural”.

SIDE EFFECTS

Most side effects of epidural analgesia are mild and hence are insignificant.

1. **Shivering**: Epidural can cause shivering in about 30% of the patients. But this is something that is very simple and can be treated by just warming up the mother by covering using a blanket.
2. **Fever**: Mild fever is a rule in all epidurals. But the temperature rarely goes above 38°C. It does not cause any harm normally and can be treated simply by an oral paracetamol.
3. **Itching**: Itching of the nose, peri-oral region and flanks is a common problem. In most cases it need not be treated at all, but if becomes troublesome can be treated with a mild anti-histaminic like Inj Chlorphenamine (a harmless drug).
4. **Hypotension**: A fall in blood pressure is also a possibility but rarely is it severe. Rapid intravenous fluids (1-litre of lactated Ringer’s solution) should be infused before instituting an epidural.

COMPLICATIONS

More serious complications like local anaesthetic toxicity, total spinal anaesthesia, nerve injuries and Neuraxial infections are all a possibility but are extremely rare (<1 in 1,00,000). Hence they are all of academic importance only.

Why is epidural not popular?

1. **Lack of awareness** - this field is relatively new and hence even among the medical professionals the awareness is far from acceptable levels.
2. **Lack of facility** - Epidural Labour Analgesia requires a dedicated team of Obstetricians and Anaesthesiologists which is not present even in the metropolitans.
3. **The attitude of accepting labour pains as an integral part of child birth** - People think labour pains are inevitable and hence have to be accepted. The feeling is that labour pains were there during our forefathers’ time and is going to be there in the future too.
4. **The male dominant society** - Though labour pains are universal, the affected population is only 50% (only females!!). Even among women those who have passed the reproductive age group do not have to suffer labour pains and hence join their male counterparts asking the parturient to tolerate the labour pains. Ultimately the percentage of vulnerable population is a meager minority (<10%).
5. **Labour Pains are inevitable. They cannot be postponed and hence for whatever reason she cannot get pain relief (Lack of facilities, consent etc.,) and thus will have to bear the pain.**
6. **Out of all the kind of pains the mankind has to suffer the labour pain is the only one which has a final positive outcome - “The Child”. The smile, the play, the cry and all that a baby has makes the mother forget the pain which she has suffered and stimulates her to get prepared for the next one.”**