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Editorial

Obstetric anesthesia : Spinal Sub-arachnoid Blockade

In 1818, Benjamine Rush, while describing the essential characteristics for an ideal anesthetic for obstetric practice expressed the hope that 'a medicine would be discovered which should suspend sensibility altogether and leave irritability or powers of motion unimpaired'. The era of general anesthesia in obstetric practice began with James Young Simpson, who used ether to aid delivery of a dead fetus on 19th January 1847. By 1862, anesthesia in midwifery was in general use. Along with the initial controversies surrounding the best choice between ether and the chloroform, the anesthetic history is also marked by the use of Nitrous oxide and Oxygen in 1880 ,use of Ethylene –Oxygen in 1923 , Cyclopropane in 1928, Divenyl ether in 1933, Trichloroethylene in'43 and Methoxtflurane in '60s. Until the early 1960's general anesthesia was preferred worldwide in obstetric practice, particularly for cesarean delivery[1].

Sub-arachnoid neuroaxial blockade, commonly known as spinal anesthesia was first introduced into obstetric practice by Oskar Kreis in 1900 in Bastle, Switzerland for operative vaginal delivery. The first cesarean delivery in the UK utilizing cocaine spinal anesthesia was performed at the Manchester Maternity Hospital in May 1901[2]. The safety of spinal anesthesia for caesarian delivery improved further over the years. Nevertheless, even in 1971, United States survey showed that general anesthesia still accounted for 32% of anesthetics administered during cesarean delivery while spinal anesthesia accounted for 53%. Then, in 1980s, the pendulum started to swing the other way. Toward the end of the decade, however, the use of spinal anesthesia over took that of general anesthesia dramatically. During this period there has been a rapid shift away from general anesthesia in obstetrics in favor of regional anesthesia, particularly spinal anaesthesia.[3] This shift amongst the anesthetists globally have been influenced by the findings of the Confidential Enquiries into Preoperative Maternal Deaths both in Europe and in America . These reports almost directly attributed increased maternal mortality during general anesthesia to failed tracheal intubations or inhalation of gastric contents[4,5].By the beginning of 2000 spinal anesthesia became increasingly popular and the preferred method for Caesarean section owing to the simplicity of the technique and the speed of onset of a dense block[6]. An adequate block for Caesarian section can be achieved in 10 minutes which makes the technique suitable even for most urgent caesarian sections.

Spinal anesthesia is cost-effective and, if performed appropriately, is devoid of significant side effects, including local anesthetic toxicity. Further advantages include the avoidance of difficult or failed intubations, which is exceedingly high in the obstetric population due to laryngeal edema and a reduced oxygen reserve.[7] Major earlier concerns against use of spinal anesthesia in obstetric patients revolved around a high incidence of

post spinal headache in young female patients. This has been resolved with the development of small-bore needles with a pencil-point tip, for example, Whitaker or Sprotte needles. These needles have decreased the incidence of significant headache to less than 1% in obstetric patients [8]. The major apprehended adverse fetal effect is utero placental hypo perfusion, which leads to an acute fall in intervillous blood flow with the potential for fetal acidemia. Several investigators compared fetal acid-base status in umbilical cord blood. These concluded that the fetal acid-base effects of regional anesthesia were minimal and clinically insignificant [9]

The use of intrathecal opioids has profoundly changed the quality of spinal anesthesia, with improved analgesia of longer duration, a reduction in local anesthetic requirements and shorter duration of motor blockade. The addition of Fentanyl in doses of 6 -25 µg increases the duration and intensity of analgesia and provide pain relief for up to 4 hour after surgery[10]. The addition of Morphine in doses of 0.1-0.5 mg will give prolonged analgesia for 18-27 hours[11]. Morphine intrathecally is associated with more side effects than fentanyl. Preliminary studies indicate that spinal anesthesia may be safely performed in patients with severe pre-eclampsia, in whom spinal anesthesia was previously considered contraindicated[12]. If coagulation is impaired, spinal anesthesia has an advantage over epidural anesthesia owing to the reduced risk of hematoma formation.

Even though cost containment should not ideally become the primary incentive in choosing the appropriate anesthetic technique, spinal anesthesia significantly reduces the anesthetic costs . This is also an important consideration for resource constrained countries like Bangladesh. The 2002 re-evaluation indicated that the rate of regional anesthesia for elective caesarean section had increased to 73.5% from a value of 39% six years previously. As a result, in the UK, 82% of the total 26,000 caesarean sections were performed under regional anesthesia in 2000. The Royal College of Anesthetists suggests that more than 95% of elective and over 85% of emergency sections should be performed under regional anesthesia[13].

Since 1980s the increased use of spinal anesthesia in Bangladesh has provided rapid reliable safe anesthesia for elective as well as urgent cesarean sections. Introduction of different associated modifications to spinal anesthesia like spinal catheters, combined spinal epidurals and appropriate use of opiates will further broaden the scope of spinal anaesthesia in obstetric anaesthetic practice here..

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