

Republic of Iraq
Ministry of Higher Education and Scientific Research
Middle Technical University
Institute of Technical Medicine-Baghdad
Department of Anesthesia Techniques



Effect of Induction-Delivery and Uterine-Delivery on Apgar Scoring of Newborn

A Project

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Prepared by

Sara Dhari Faisal
Tabarak Deaa Jalel
Hassan Ahmed Ibrahim
Hussein Mohammed Ali
Alaa Ali Khairallah
Luqman Bahjet Abdul-Wahed
Sajjad Rahm Hmood

Dawood Fawzi Kareem
Abdullah Yousef Hussain
Alaa Raad Khalil
Huda Ali Hussein
Wiaam Jassim Khudair
Majed Ali Hussein
Omer Saad Hussein

Supervisor

Shaymaa K. Jaifer
M.sc Anatomy Histology

Graduation year

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

(يَرْفَعُ اللَّهُ الَّذِينَ آمَنُوا مِنْكُمْ وَالَّذِينَ أُوتُوا الْعِلْمَ دَرَجَاتٍ ۗ وَاللَّهُ
بِمَا تَعْمَلُونَ خَبِيرٌ) ﴿١١﴾

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المجادلة(11)

Certificate

We certify that his thesis was prepared under our supervisor of the scientific of anesthesia, in partial fulfillment of the requirement for the degree of fellow ship of the Iraqi commission for medical specializations in anesthesia.

supervisor

Shaymaa K. Jaifer

M.Sc. Anatomy Histology

In view of recommendation to me I forwarded this graduation project for examination

Head of Department

Dr.Kawther S. Dawood

Signature

Date: / /2019

الاهـداء

الى سيد البشر الى من علمني العلم النبي
العربي سيدنا محمد (صلى الله عليه وسلم)
الى من رباني صغيراً الى عطر الورد
الصافي الى بحر الحنان ومن تحت اقدامها
الجنان امي العزيزة... مودة ورحمة
الى النبع العذب الذي انهل منه كل
المعاني الفضيلة ..ابي... وفاء وعرفاناً
الى من شددت بهم ازري شموع بيتنا
وزهور حدائقنا اخوتي واخواتي
الى شهداء العراق العظيم وطني وبيتنا الكبير
الى اصدقائي الذين رافقوني في دراستي

إليهم جميعاً اهدي ثمرة جهدي هذا

شكر وتقدير

بعد حمد الله وشكره على ما انعم علينا من فضل في إتمام هذا البحث فلا يسعني وقد انتهيت من اكمال البحث الا ان أتقدم بجزيل الشكر وعظيم الامتنان الى الأستاذة الفاضلة (شيماء كاظم جعفر) التي لم تبخل بجهدا علينا، ولما قدمته لنا من مساعدة كبيرة وطيبة كان لها الأثر الكبير في ظهور هذا البحث على الشكل الذي ظهر فيه.

وبأصدق آيات الشكر والامتنان اهدي هذه الكلمات الى جميع اساتذتي في قسم تقنيات التخدير.

تتناثر الكلمات حبراً وحباً

على صفائح الأوراق

لكل من علمنا

ومن أزال غيمة جهل مررنا بها

برياح العلم الطيبة

ولكل من أعاد رسم ملامحنا

وتصحيح عثراتنا

الى اساتذتنا أسمى آيات الشكر والتقدير

ABSTRACT

The anaesthetic drugs technique used in caesarean section should prevent fetal depressant resulting from passing of drugs through the maternal-placental barrier which can lead to adverse effects such as decreasing in Apgar score and respiratory depression in new born neonates. Apgar score is the first test given to newborn after delivery by caesarian section or normal vaginal delivery to evaluate a newborn physical condition after delivery and to determine any immediate need for extra medical or emergency care. To determine the effect of general anaesthetic drugs and spinal anesthesia on the Apgar score of new-borns in relation to the induction-delivery interval and uterine delivery interval. One hundred and twenty healthy full term pregnant women undergo elective caesarean section. They were divided into 2 groups: Group I received general anaesthesia, Group II received spinal anaesthesia. Induction-delivery interval and uterine-delivery interval was noted using a stopwatch. After delivery the baby's Apgar score was noted at 1, 5 and 10 min. and proper resuscitation was done. Low Apgar score and low to moderate score at one minute was found when induction-delivery interval up to five minutes and more than 10 minutes also low and low to moderate score of infants when uterine-delivery interval more than 120 seconds. One minute Apgar score of infants were affected by induction-delivery time (≤ 5 min and > 10 min) and uterine-delivery interval (>120 sec).

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CHAPTER ONE

INTRODUCTION

1.1:Introduction

The Apgar scoring system evaluates the physical condition of the newborn at one minute after birth and again at five minute after birth. The newborn receive a total score (Apgar score) that ranges from 0 to 10 based on rating colors, heart rate , respiratory effort, muscle tone and reflex irritability. Delivery of baby by caesarean section has become increasingly common. Obstetric anaesthesia requires special skills because two lives are involved (mother and infants). Induction of general anesthesia (GA) in caesarean surgeries and the use of anaesthetic drugs is one of challengeable issues among anaesthesiologists. The anaesthetic technique should prevent maternal awareness while providing adequate oxygenation for her fetus and avoiding depressant effects of anesthetic drug when passing through the maternal-placental barrier which can lead to adverse effects such as decreasing in Apgar score and respiratory depression in new born neonates. New-borns products of C\S can be assessed clinically using the Apgar score which was devised in 1952 by Dr.Virginia Apgar and used it to evaluate the health of new-born and assess the effects of obstetric anaesthesia on new-born at birth. It consists of 5 items to be evaluated at 1 , 5 and 10 minutes after birth, those items are heart rate, breathing, muscle tone, reflex irritability and colour. Five minutes score is regarded as the better predictor of survival in infancy in the long term where as the one minute score definitely has the value for assessing the effects of different drugs given to the mother during the caesarean saction. Apgar scores 4 or below are considered critically low while 4 to 6 are fairly low and 7 to 10 generally normal.(1)

1.2:Aim of Study

The study was carried out to evaluation the effect of anesthetic techniques viz general anesthesia and spinal anesthesia on Apgar scoring of newborns in relation to the induction delivery interval.

CHAPTER TWO

LITERATURE REVIEW

2. LITERATURE REVIEW

2.1 DEFINITION OF APGAR SCORE

Apgar score: is a scoring system to assess the clinical condition of neonate's the score include five areas of assessment and the total score ranges from 0 to 10.

2.2: REIVEW

Apgar scoring is usually done at one minute and five minute after birth. The test may be repeated if the score is and remains low .scores between 7 and 10 are considered normal, 4 to 6 fairly low and 3 and under critically low. In 1953, Virginia Apgar ,M.D. published her proposal for a new method of evaluates of the new born infant. The avowed purpose of this paper was to establish a simple and clear classification of new born infants which can be used to compare the results of obstetric practices ,types of maternal pain relief and the results of resuscitation .Having considered several objective signs pertaining to the condition of the infant at birth she selected five that could be evaluated and taught to the delivery room personnel without difficulty .These signs were heart rate ,reflex irritability, muscle tone and color. Sixty seconds after the complete birth of the baby a rating of zero ,one or two was given to each sign .Infants delivery by cesarean section were more vigorous (average score 8.0) when spinal was the method of anesthesia versus an average score of 5.0 when general anesthesia was used .correlating the 60 s score with neonatal mortality ,Virginia found that mature infants receiving 0,1or 2 scores had a neonatal death rate of 14% : those scoring 3,4,5,6 or7 had a death rate of 1.1%: and those in the 8-10 score group had a death rate of 0.13%.She concluded that the prognosis of an infant is excellent if he receives one of the upper three scores ,and poor if one of the lowest three scores.[2]

The scoring system was put into common use, medical professionals created an acronym using Apgar's last name, so that each criterion included in the assessment in the Apgar score are:-

1. A –Appearance (Skin Color) this is an evaluation of the baby's skin color. The medical team measures if the baby blue or pale all over, blue at the extremities, or pink all over
2. P- Pulse (Heart Rate) during this evaluation, the medical team measures if the baby's heart rate is absent, slow (<100 beats per minute(bpm)), or fast (>100bpm)
3. G - Grimace (Reflex Irritability/ Response) During this evaluation, the medical team asks if the baby lacks a response to stimulation, responds with a grimace, or responds by crying and pulling away.
4. A - Activity (Muscle Tone) during this evaluation, the medical team asks if the baby is limp, if the baby has some flexion (joint movement), or if the baby shows active motion.
5. R - Respiration (Breathing Ability) during this step, the medical team asks if the baby is failing to breathe, if the baby has a weak cry and slow breathing, or if the baby is breathing well and crying normally [3]

2.3 Interpretation of scores

The test is generally done at 1 and 5 minutes after birth and may be repeated later if the score is and remains low. Scores 7 and above are generally normal; 4 to 6, fairly low, and 3 and below are generally regarded as critically low and cause for immediate resuscitative efforts. [4]

A low score on the one-minute test may show that the neonate requires medical attention but does not necessarily indicate a long-term problem, particularly if the score improves at the five-minute test. An Apgar score that remains below 3 at later times, such as 10, 15, or 30 minutes, may indicate longer-term neurological damage, including a small but significant increase in the risk of cerebral palsy. However, the Apgar test's purpose is to determine quickly whether or not a newborn needs immediate medical care. It is not designed to predict long-term health issues. [5]

A score of 10 is uncommon, due to the prevalence of transient cyanosis, and does not substantially differ from a score of 9. Transient cyanosis is common, particularly in babies born at high altitude. A study that compared babies born in Peru near sea level with babies born at very high altitude (4340 m or 14,138 ft) found a significant average difference in the first Apgar score but not the second. Oxygen saturation (see pulse oximetry) also was lower at high altitude. [6]

2.4: Criteria

Apgar sign	Score of 0	Score of 1	Score of 2
Skin color	Blue, pale	Body pink , Extremities blue	Completely pink
Heart rate	Absent	Less than 100/min	More than 100/min
Reflex irritability	No response	Grimace	Cry or active withdrawal
Muscle tone	Limp	Some flexion	Active motion
Respiratory Effort	Absent	Weak cry , hypoventilation	Good, strong cry

Each variable is evaluated individually & scored from 0 to 2 in an infant at both 1 & 5 minutes of age. the total score at each time period is the sum of the individual variables. A total score of 10 is perfect. [2]

2.5: CAESAREAN SECTION

Cesarean delivery (C-section) is a surgical procedure used to deliver a baby through incisions in the abdomen and uterus. This cesarean section is performed in the operating room under the influence of general or local anesthesia depending on the health status of the woman. The patient is left lying for 4 to 6 hours without food or drink. It is fed only by the serum, then moves slowly, And on the seventh day of the caesarean section reveals the doctor on the location of the wound and remove the pole, which is usually of thin nylon threads, the wound is usually horizontal pubic hair directly instead of the section that extends from the navel to the bottom distorts the view of the abdomen, Caesarean breast feeding And the duration of the caesarean section does not exceed one hour. [7]

Women chose caesarean section rather than vaginal delivery for reasons including:

- 1-The fear of the pain of natural childbrith.
- 2- Fear on the health of the fetus.
- 3- Fear of side effects of vaginal birth, such as urinary incontinence.
- 4- To determine the time of birth at an appropriate time.
- 5- The mothers of anxious
- 6-Considers some of the fashion [7]

A caesarean section is used when normal birth is impossible and carries caesarean section mandatory, but the decision is still in many cases with the obstetrician. One of the most important motives and conditions for the conduct of a caesarean section are the complications of labor and factors that hinder normal birth through the vagina, such as:

Length of labor, Rupture of the uterine wall, increased blood pressure in the mother or child and an increase in heart rate, problems in the placenta

Obstetric obstruction due to the large size of the fetus and weight gain (more than 4 kg) and the narrow mother basin, stop open

Both local anesthesia and epidural anesthesia are permitted. Local anesthesia is preferred where the mother is allowed to be awake and react immediately with her child. Other local anesthesia features include the absence of typical risks of general anesthesia: pulmonary fibrosis of gastric contents. The incidence is relatively high in patients undergoing general anesthesia in late pregnancy) and esophageal infarction. Local anesthesia is used in 95% of births. Spinal, spinal or epidural anesthesia is the most common method used in caesarean section. General anesthesia can be necessary because of certain risks to the mother and child. Patients with severe, severe bleeding may not be able to withstand the dynamic effects of local anesthesia. General anesthesia is also preferred in urgent cases such as severe fetal distress where there is no time for local anesthesia.[7]

The risk of anesthesia for cesarean sections General anesthetics and regional anesthetics are associated with different risks. In general anesthesia, there is a risk of the woman vomiting while unconscious and the vomit getting into her lungs (called aspiration of stomach contents). Although this is very rare, it can be life-threatening. Women who have an epidural or a spinal block occasionally experience a sudden major drop in blood pressure. They might also have a type of headache that can be caused by the injection into the epidural or subarachnoid space (“post-Dural puncture headache”). In the past, Cesarean sections were nearly always done under general anesthetic, but nowadays more women and their doctors decide to do an epidural instead.[7]

2.6: GENERAL ANAESTHESIA

Is a medically induced coma with loss of protective reflexes, resulting from the administration of one or more general anesthetic agents. It is carried out to allow medical procedures that would otherwise be intolerably painful for the patient; or where the nature of the procedure itself precludes the patient being awake .

A variety of drugs may be administered, with the overall aim of ensuring unconsciousness, amnesia, analgesia, loss of reflexes of the autonomic nervous system, and in some cases paralysis of skeletal muscles. The optimal combination of drugs for any given patient and procedure is typically selected by an anesthetist, or another provider such as an operating department practitioner, anesthetist practitioner, physician assistant or nurse anesthetist (depending on local practice), in consultation with the patient and the surgeon, dentist, or other practitioner performing the operative procedure. [8]

Pharmacology of common anesthetic agent used in caesarean section

1- Inhalation Agents

It can be defined as giving anesthetic gases or steam by inhalation.

We have alot of inhalation agent and it subdivide into gas such as N₂O and steam such as Halothane, Isoflurane and Sevoflurane

Halothane

Halothane, sold under the brandname Fluothane among others, is a general anesthetic. It can be used to start or maintain anaesthesia One of its benefits is that it does not increase the production of saliva which can be particularly useful in those who are difficult to intubate. It is used by inhalation.[9]. Side effects include an irregular heartbeat, decreased effort to breathe (respiratory depression), and liver problems. Like all volatile anaesthetics, it should not be used in people with a history of malignant hyperthermia either in themselves or their family members[9]. It appears to be safe in porphyria. It is unclear whether use during pregnancy is harmful to the child, and it is not generally recommended for use during a cesarean section.Halothane is a chiral molecule that is used as a racemic mixture.[10,11.12].

Isoflurane

Isoflurane, sold under the trade name Forane among others, is a general anesthetic. It can be used to start or maintain anesthesia. Often another medication is used to start anesthesia due to airway irritation with isoflurane. It is used by inhalation.[13]

Side effects include a decreased ability to breathe (respiratory depression), low blood pressure, and irregular heartbeat. Serious side effects may include malignant hyperthermia and high blood potassium. It should not be used in people with a history of malignant hyperthermia in either themselves or their family members. It is unknown if use during pregnancy is safe for the baby, but use during a cesarean section appears to be safe. Isoflurane is in the halogenated ether family of medication.[13.14.15].

1-Intravenous Drugs (I.V Drugs)

Propofol

Propofol, marketed as Diprivan among other names, is a short acting medication that results in a decreased level of consciousness and lack of memory for events. Its uses include the starting and maintenance of general anesthesia, sedation for mechanically ventilated adults, and procedural sedation. It is also used for status epilepticus if other medications have not worked. It is given by injection into a vein. Maximum effect takes about two minutes to occur and it typically lasts five to ten minutes. Common side effects include an irregular heart rate, low blood pressure, burning sensation at the site of injection, and the stopping of breathing. Other serious side effects may include seizures, infections with improper use, addiction, and propofol infusion syndrome with long-term use. It appears to be safe for using during pregnancy but has not been well studied in this group. However, it is not recommended during cesarean section. Propofol is not a pain medication, so opioids such as morphine may also be used.[16].

Onset of action 15-30 second

Dose 3-5

Elimination half-life 1.5-30 hours

Duration of action 5-10 minutes

Excretion Liver

Ketamine

It is a medication mainly used for starting and maintaining, anesthesia. It induces a trance-like state while providing pain relief, sedation, and memory loss. Other uses include for chronic pain and for sedation in intensive care. Heart function, breathing, and airway reflexes generally remain functional during its effects. Effects typically begin within five minutes when given by injection with the main effects lasting up to 25 minutes.[17]. Common side effects include agitation, confusion, or hallucinations] Elevated blood pressure and muscle tremors are relatively common, while low blood pressure and a decrease in breathing are less so. Spasms of the larynx may rarely occur.[18.19].

Onset of action

Intravenous: seconds

Intramuscular: 1–5 min

Subcutaneous: 15–30 min

Insufflation: 5–10 min

By mouth: 15–30 min

Elimination half-life

Ketamine: 2.5–3 hours

Norketamine: 12 hours

Duration of action

Intramuscular: 0.5–2 hours

Insufflation: 45–60 min

By mouth: 1–6+ hours

Anesthetic dose 1-2mg/kg IV

Analgesic dose 0.1-0.3mg/kg IV

Intramuscular 3-8mg/kg

Excretion

Urine: 91%

Feces: 1–3%

Atracurium besilate

Atracurium besilate, is a medication used in addition to other medications to provide skeletal muscle relaxation during surgery or mechanical ventilation . It can also be used to help with endotracheal intubation but suxamethonium (succinylcholine) is generally preferred if this needs to be done quickly. It is given by injection into a vein. Effects are greatest at about 4 minutes and last for up to an hour. Common side effects include flushing of the skin and low blood pressure. Serious side effects may include allergic reactions; however, it has not been associated with malignant hyperthermia. Prolonged paralysis may occur in people with conditions like myasthenia gravis. It is unclear if use in pregnancy is safe for the baby. [20,21]

Elimination half-life 12-17min. **Dose** 0.3-0.6 mg/kg.

Rocuronium bromide

Rocuronium bromide (brand names Zemuron, Esmeron) is an aminosteroid non-depolarizing neuromuscular blocker or muscle relaxant used in modern anaesthesia to facilitate tracheal intubation by providing skeletal muscle relaxation, most commonly required for surgery or mechanical ventilation. It is used for standard endotracheal intubation, as well as for rapid sequence induction. [22]

Elimination half-life 66-80min

Dose 0.4-1.2mg/kg

Excretion :urine

2.7 SPINAL ANAESTHESIA

Spinal anaesthesia, also called spinal block, subarachnoid block, intradural block and intrathecal block, is a form of neuraxial regional anaesthesia involving the injection of a local anaesthetic or opioid into the subarachnoid space, generally through a fine needle, usually 9 cm (3.5 in) long. It is a safe and effective form of anaesthesia performed by nurse anaesthetists and anaesthesiologists which can be used as an alternative to general anaesthesia commonly in surgeries involving the lower extremities and surgeries below the umbilicus. The local anaesthetic or opioid injected into the cerebrospinal fluid provides anaesthesia, analgesia, and motor and sensory blockade.[23,24]

Bupivacaine

Bupivacaine, marketed under the brand name Marcaine among others, is a medication used to decrease feeling in a specific area. It is used by injecting it into the area, around a nerve that supplies the area, or into the spinal canal's epidural space. It is available mixed with a small amount of epinephrine to make it last longer. It typically begins working within 15 minutes and lasts for 2 to 8 hours.[25,26]

Possible side effects include sleepiness, muscle twitching, ringing in the ears, changes in vision, low blood pressure, and an irregular heart rate. Concerns exist that injecting it into a joint can cause problems with the cartilage.[25]

Onset of action: Within 15 min

Elimination half-life 3.1 Hours (adults)

8.1 Hours (Neonates)

Duration of action 2-8 Hours

CHAPTER THREE

METHODOLOGY

3.Methodology

This study was done at (Baghdad Teaching Hospital and In Baghdad city and Alimamain Al kadhimain Hospital from (November 2018 to March 2019) A total (120) women (36-40) gestation weeks planned for election cesarean section wave include in this study.All information was recorded from those women through designed Questions, which are included name, age, body weight, gestational age , induction for cesarean section .Women with medical disease such as D.M , hypertension, and other were excluded from take analgesic or sedation drugs before operation .

(120) they were divided into two group:

Patient from Group 1

(70)Received General Anaesthesia The patient should be pre-oxygenated with 100% oxygen via a face mask for 3 minutes before induction. Intravenous induction by minimum dose of Propofol (3-5 mg/kg) with Ketamine (1mg/kg) , followed by non-depolarization muscle relaxant Pancuronium (Esmeron) (0.5 mg/kg) . Endotracheal intubation that done and after it anaesthesia was maintained with oxygen and 2% Isoflurane with pancuronium (0.1 mg/kg) tills the end of surgery.

Patient from Group 2

(50)Received spinal anaesthesia following atropinization. Marcaine (0.5%) 5mg per ml.

Induction-delivery interval (the time interval from the beginning of induction with anaesthesia to the delivery of the baby(I-D)) and uterine-delivery interval (the time interval from the uterine incision to the delivery of the baby (U-D)) was noted using a stopwatch . after delivery the baby Apgar score was noted at 1,5 and 10 min .and proper resuscitation was done .

CHAPTER FOUR

RESULTS

Table 1 : Induction – delivery time following general anesthesia and Apgar scoring in newborns

Induction delivery interval (min)	No. of cases	At 1 min in newborns			At 5 min in newborns			At 10 min in newborns		
		0 - 3	4 - 6	7- 10	0 - 3	4 - 6	7- 10	0 - 3	4 - 6	7- 10
Up to 5	16	1	11	4	-	-	16	-	-	16
6-10	49	2	21	26	-	5	44	-	1	48
>10	5	2	2	1	-	2	3	-	-	5
total	70	5	34	31	-	7	63	-	1	69

Table 2 :Uterine– delivery time following general anesthesia and Apgar scoring in newborns

Uterine delivery interval (Sec)	No. of cases	At 1 min in newborns			At 5 min in newborns			At 10 min in newborns		
		0 - 3	4 - 6	7- 10	0 - 3	4 - 6	7- 10	0 - 3	4 - 6	7- 10
>120	40	2	16	22	-	6	34	-	1	39
<120	30	1	8	21	-	-	30	-	-	30
total	70	3	24	43	-	6	64	-	1	69

Table 3 : Induction – delivery time following spinal anesthesia and Apgar scoring in newborns

Induction delivery interval (min)	No. of cases	At 1 min in newborns			At 5 min in newborns			At 10 min in newborns		
		0 - 3	4 - 6	7- 10	0 - 3	4 - 6	7- 10	0 - 3	4 - 6	7- 10
Up to 5	4	-	2	2	-	-	4	-	-	4
6-10	42	-	16	26	-	1	41	-	-	42
>10	4	1	3	-	-	1	3	-	1	3
total	50	1	21	28	-	2	48	-	1	49

Table 4 : Uterine- delivery time following spinal anesthesia and Apgar scoring in newborns

Uterine delivery interval (Sec)	No. of cases	At 1 min in newborns			At 5 min in newborns			At 10 min in newborns		
		0 - 3	4 - 6	7- 10	0 - 3	4 - 6	7- 10	0 - 3	4 - 6	7- 10
<120	26	-	6	20	-	1	25	-	-	26
>120	24	-	7	17	-	3	21	-	1	23
total	50	-	13	27	-	4	26	-	1	49

The time is a critical factor for all operation in general, so the study based on the induction delivery time, which has a great, affect on apgar score in neonatal. General anesthesia Result Sixteen patients had induction-delivery interval up to 5min, Forty-nine had an interval between 6- 10min and five had an interval 10min : As shown in (Table 1) When I-D interval up to 5 the apgar scoring done at the end of 1min in new-borns revealed that one infant had low score (0-3) ,eleven infant had low to moderate apgar score (between 4 and 6) and four infant had high score (7-10). The apgar scoring at 5min in newborns revealed that no infant had low score (4_6).The apgar scoring at 10min all the new_born had high score(7_10) When I_D interval was 6_10min after 1min apgar score two new_born infant had 0_3 score, twenty_one infants when score (4_6) and twenty_six when had high score(7_10),but after 5min apgar score no infant at score (0_3), five infants when score(4_6) and fourty_four infants had high score (7_10).After 10min apgar score no infant at score(0_3),one when score (4_6) and .fourty_eight infants had high score (7_10) When I_D interval was 10 min the number of new_borns that had low to (0_3)was two and two new_borns had low to moderate Apgar score (4_6) and one new_born had high score (7_10). At 5min the apgar score no infant at score (0_3) and two infants at score (4_6) and three infants at . score (7_10),but after 10min apgar score the new_borns had high apgar score (7_10) According to (Table 2) thirty patient had uterine delivery interval of more than 120 seconds and . fourty patient had less than 120 seconds When U-D interval 120 ,At 1min there is one new-born achieved low score (0-3) and those of . low to moderate score (4-6) was eight ,and twenty_one had high score (7-10) .After 5min there is all new_borns had high apgar score (7-10) .After 10min there is all new-borns had high apgar score (7-10).

While Spinal anesthesia Result Four patients had induction-delivery interval up to 5min, Forty-two had an interval between 6-10min and four had an interval 10min : As shown in (Table 3) When I-D interval up to 5 the apgar scoring done at the end of 1min in new-borns revealed that no infant had low score (0-3) ,two infant had low to moderate apgar score (between 4 and 6) and two infant had high score (7-10),but at 5 and 10 min apgar score all the new born had high score (7-10) When I-D interval was (6-10) after 1min apgar score no infant had (0-3) score ,sixteen infants when score (4-6) and twenty-six infants had high score (7-10), but after 5min apgar score only one infant had low to moderate apgar scor (4-6) and the other forty-one infant had high apgar score (7-10) .After 10 min apgar score all new-born had high score (7-10) When I-D interval was 10 and after 1min apgar score the number of new-born that had low scoring (0-3) was one and three new-born had low to moderate apgar score (4-6) ,and no infant had high .score But after 5 and 10 min apgar score only one infant stay on low to moderate apgar score (4-6) and .the other new -borns had high apgar score (7-10). According to (Table 4) twenty-four patient had uterine delivery interval of more than 120 seconds . and twenty-six patient had less than 120 seconds When U-D interval 120 ,At 1min there is no new-born achieved low score (0-3) and those of . low to moderate score (4-6) was seven ,and seventeen had high score (7-10) After 5min there is no infant had low score (0-3) and three new-borns had low to moderate apgar .score (4-6), Twenty-one infant had high apgar score (7-10) After 10min there is no new born had low apgar scoring (0-3), there is only one infant had low to .moderate apgar score (4-6), and twenty-three new-borns had high apgar score (7-10).

CHAPTER FIVE

DISCUSSION

DISSCUSION

Neonatal Outcome Following Cesarean section that depend on various factors: i.e. maternal and fetal conditions, method of anesthesia, induction –delivery time (IDT), induction –uterine incision time (IUT),uterine incision – delivery time (UDT), surgical experience (specialists vs. residents) and assistant, and gestational age; which might influence neonatal outcome following cesarean section were investigated in (120)patients who underwent cesarean section from (November 2018 to March 2019) . Neonatal outcome was assessed by 1- and 5-minute and 10-minute Apgar scores taken immediately after birth.

The results of the present study indicate that Apgar scoring done at 1 min was higher in neonates born following caesarean section carried out under spinal anaesthesia as compared to those under general anaesthesia. A search was carried out to establish the relation of Apgar scoring to induction delivery time in both groups. It was observed that the (16)patients from Group I had induction delivery interval of less than 5 min. and (12) of their neonates had low to moderate Apgar scores. This can be explained on the basis of the anaesthetic agent used. None of the patients from Group II had induction-delivery interval of less than 5 min and no baby had low Apgar score.

The induction-delivery intervals of more than 10 min were also found to be associated with moderate Apgar scoring. This may be due to higher degree of foetal acidosis as a result of longer duration of anaesthesia, but even in this group, neonates born under spinal anaesthesia showed high Apgar scoring. The neonates of mothers having uterine delivery interval more than 120 sec and receiving general anaesthesia showed low to moderate Apgar scoring as against those from Group II. Increase in uterine-delivery interval decreases efficiency of focto-materal exchange resulting in foetal acidosis. The low Apgar scoring at 1 min. may be the result of laryngeal spasm induced by

aspiration of liquor blood during intrauterine manipulation. This explains the Thus, induction-delivery intervals (< 5 min and > 15 min) and uterine-delivery intervals < 120 sec have less effect on Apgar scoring of neonates of mothers who are administered spinal anaesthesia as compared to general anaesthesia.

So an important factor affecting neonatal outcome is the elapsed time between the induction of anesthesia and clamping of the umbilical cord, as this represents the time of fetal exposure to maternally administered medication. A second factor is the time from uterine incision to delivery of the baby. A long incision to delivery time is associated with an incidence of fetal acidosis, caused by uteroplacental vasoconstriction.[27].

CHAPTER SIX

CONCLUSIONS

AND

RECOMMENDATION

6.1:CONCLUSIONS

1-New-borns infants with induction-delivery time (≤ 5 min and >10 min) and uterine – delivery interval (>120 sec) have less effect on Apgar scoring of neonates of mothers who are administered spinal anesthesia as compared to general anaesthesia

2-had low and low to moderate Apgar scores at one minute on other hand all babies born were improved and show satisfactory Apgar score at 5 minute and 10 minutes interval after resuscitation (oxygenation and oral suction).

6.2:RECOMMENDATION

1-It is recommended to conduct a study shows the relationship of Apgare score to gestation age .

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