

**UMBILICAL CORD pH AMONG  
INTRAPARTUM CESAREAN  
SECTION DELIVERIES**

**Thesis**

**Submitted For Partial Fulfillment  
Of Master Degree in  
Obstetrics and Gynecology**

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## ACKNOWLEDGMENT

First and foremost , thanks to God the most beneficial and most merciful.

I would like to express my appreciation and deep gratitude to **Prof. Dr. KHALED MOHAMMED DIAB** Professor of Obstetrics and Gynecology, Faculty of Medicine, Ain Shams University for his unlimited help, suggestions, encouragement and criticism that were essential in the preparation of this thesis .

Also I wish to express my appreciation and deep gratitude to **Prof. Dr. TAREK FATHY TAMARA** , Professor of Obstetrics and Gynecology, Faculty of Medicine, Ain Shams University for his encouragement and that were very powerful to me.

I wish to record my sincere gratitude to **Dr. IHAB FOUAD SERAG ELDIN**, Lecturer of Obstetrics and Gynecology, Faculty of Medicine, Ain Shams University, for his patience, friendship, valuable help, suggestions and criticism during my work in the thesis.

I am greatly indebted to the patients who tolerated my work.

Last but not least, I great acknowledge the sincere help and support of my family and my love for their patience all that time.

*MOHAMED OMAR*  
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# Table of Contents

Subject	Page
Introduction	1
<u>Review of literature :</u>	
<b>Chapter(1): Neonatal assessment</b>	<b>4</b>
What is neonatal assessment?.	4
Apgar scoring system.	4
Umbilical cord blood acid – base and blood gas measurement.	9
<b>Chapter(2): Anatomy and Histology of Umbilical Cord</b>	<b>13</b>
Normal Anatomy of the Umbilical Cord.	13
Sonographic Biometry of the Umbilical Cord	14
Histology of umbilical cord.	19
Cord Blood Tests.	22
Components of the Arterial Blood Gas.	22
<b>Chapter(3): Umbilical Cord pH</b>	
General interpretation of fetal pH and blood gas values.	25
Advantages of routine cord blood pH measurement.	32
Disadvantages of routine cord blood pH measurement.	34
Validation and interpretation	35
Clinical significance of normal and abnormal values.	44
Sampling and measurement.	47

Umbilical Cord Acid-Base Analysis and The Need for an Expert System.	51
<b>Chapter(4): pH of Blood and acid base balance</b>	<b>56</b>
Acid-Base Balance.	56
Causes of changes in blood pH.	57
Buffer systems.	59
Acid-Base Disorders.	61
Oxyhemoglobin Dissociation Curve.	67
Summary of changes in pH, PaCO <sub>2</sub> and HCO <sub>3</sub> .	69
<b>CHAPTER (5): Cesarean Section</b>	<b>70</b>
Indication for cesarean section.	70
Classification and Types.	77
<b>Aim of the work</b>	<b>79</b>
<b>Patient and Methods</b>	<b>80</b>
<b>Results</b>	<b>84</b>
<b>Discussion</b>	<b>104</b>
<b>Summary and Conclusion</b>	<b>111</b>
<b>Recommendations</b>	<b>118</b>
<b>References</b>	<b>119</b>
<b>Arabic Summary</b>	<b>137</b>

## *List of Abbreviations*

Abbreviation	Term
<b>AAOP</b>	American academy of pediatrics
<b>ABG</b>	Arterial blood gases
<b>ACOG</b>	American Colleague of Obstetricians and Gynecologists
<b>BDecf</b>	Base deficit of extracellular fluid
<b>BPP</b>	Biophysical profile
<b>bpm</b>	Beat per min
<b>CBC</b>	Complete blood count
<b>CBG</b>	Cord blood gases
<b>CS</b>	Cesarean section
<b>CTG</b>	Cardiotocography
<b>EFM</b>	Electronic fetal monitoring
<b>F.D</b>	Fetal distress
<b>FHR</b>	Fetal heart rate
<b>FBS</b>	Fetal blood sampling

<b>G.A</b>	Gestational age
<b>NICU</b>	Neonatal intensive care unit
<b>OVD</b>	Operative vaginal delivery
<b>PCo2</b>	Partial pressure of Co2
<b>Po2</b>	Partial pressure of oxygen
<b>RCT</b>	Randomized controlled trial
<b>ROM</b>	Rupture of membranes
<b>SD</b>	Standard deviation
<b>SVD</b>	Spontaneous vaginal delivery
<b>TSR</b>	Time to sustained respiration
<b>U.A</b>	Umbilical artery
<b>U.C</b>	Umbilical cord
<b>VLBW</b>	Very low birth weight

## *List of Tables*

<b>Table No.</b>	<b>Title</b>	<b>Page</b>
<b>1</b>	Apgar score parameters.	<b>8</b>
<b>2</b>	Number of umbilical arterial pH samples done in B.C in 2000/2001-2001/2002-2002/2003.	<b>30</b>
<b>3</b>	Normal umbilical cord blood pH gas values in term new born (riley &johnson 1993).	<b>31</b>
<b>4</b>	Arterial cord blood pH values after uncomplicated pregnancy and labor.	<b>37</b>
<b>5</b>	Arterial cord blood pH values in retrospective cohort study.	<b>39</b>
<b>6</b>	Results of mean and lower limits for arterial cord blood pH from obstetrics department in Netherlands NVD.	<b>40</b>
<b>7</b>	Results of mean and lower limits for arterial cord blood ph after normal pregnancies culminating in elective cesarean section.	<b>41</b>



<b>8</b>	Summary of changes in pH, Pao <sub>2</sub> and Hco <sub>3</sub> in acid base disorders.	<b>69</b>
<b>9</b>	Distribution of cases of previous C.S.	<b>85</b>
<b>10</b>	Distribution of cases of preeclampsia.	<b>86</b>
<b>11</b>	Distribution of cases of abnormal presentation.	<b>87</b>
<b>12</b>	Distribution of cases of fetal distress.	<b>88</b>
<b>13</b>	Maternal sociodemographic characters of maternal indication versus fetal indications.	<b>89</b>
<b>14</b>	Parity of maternal indications versus fetal indications.	<b>91</b>
<b>15</b>	Birth weight of maternal indications versus fetal indications.	<b>92</b>
<b>16</b>	Apgar score 1 min in maternal and fetal indication.	<b>94</b>
<b>17</b>	Apgar score 5 min in maternal and fetal indications.	<b>96</b>
<b>18</b>	Umbilical cord ph among C.S deliveries.	<b>97</b>
<b>19</b>	The means and standard deviations for umbilical arterial pH , Po <sub>2</sub> , Pco <sub>2</sub> for C.S.	<b>99</b>

<b>20</b>	Pco2 among C.S deliveries.	<b>101</b>
<b>21</b>	Po2 among C.S deliveries.	<b>103</b>

# List of Figures

<b>FIGURE No.</b>	<b>Title</b>	<b>Page</b>
<b>1</b>	Transverse section of the umbilical cord showing two arteries and one vein.	<b>15</b>
<b>2</b>	Insertion of the umbilical cord in the placental mass.	<b>16</b>
<b>3</b>	Longitudinal section of the umbilical cord.	<b>17</b>
<b>4</b>	Normogram for the umbilical vein diameter.	<b>18</b>
<b>5</b>	Histological appearance of the umbilical cord showing two arteries and one vein.	<b>20</b>
<b>6</b>	Figure of umbilical vein .	<b>20</b>
<b>7</b>	Figure of umbilical artery.	<b>21</b>
<b>8</b>	Figure of two umbilical arteries and one vein.	<b>21</b>
<b>9</b>	A diagram for doubly clamped section for umbilical cord for pH and blood gases.	<b>49</b>
<b>10</b>	A photo for doubly clamped section for umbilical cord for pH and blood gases.	<b>50</b>
<b>11</b>	Conceptual block diagram of expert system.	<b>55</b>
<b>12</b>	Acid- base balance.	<b>56</b>
<b>13</b>	Oxyhaemoglobin dissociation curve.	<b>68</b>
<b>14</b>	Mean of age in maternal and fetal indications of C.S	<b>90</b>

<b>15</b>	Mean of gestational age in maternal and fetal indications of C.S.	<b>90</b>
<b>16</b>	Parity of maternal indications versus fetal indications.	<b>92</b>
<b>17</b>	Apgar score 1 min in maternal indications and fetal indications.	<b>94</b>
<b>18</b>	Apgar score 5 min in maternal indications and fetal indications.	<b>96</b>
<b>19</b>	Umbilical cord ph among C.S.	<b>99</b>
<b>20</b>	Pco2 among C.S deliveries.	<b>100</b>
<b>21</b>	Po2 among C.S deliveries.	<b>103</b>

# INTRODUCTION

Childbirth is a stressful experience for both mother and infant. Every infant is being regularly deprived of oxygen as maternal contractions, which increase in frequency and duration throughout labor until delivery, restrict blood supply to the placenta. This oxygen deprivation can lead to fetal distress, permanent brain damage and, in the extreme, fetal death. Once an infant has been delivered the attending clinicians must make an immediate assessment of the need for neonatal resuscitation. **(Alfirevic and Neilson, 1998)**

Neonatal assessment is an ongoing process performed on every neonate. Specific times to evaluate a neonate are: Prior to birth,

Immediately after birth , 6-12 hours of age (most detailed examination), prior to discharge. **(Tappero et al., 1999).**

An assessment of neonatal outcome may be obtained from analysis of blood in the umbilical cord of an infant immediately after delivery. This can provide information on the health of the newborn. **(Myer S and Nunnley L , 1996 ).**

Analysis of the acid-base balance of arterial and venous blood from a clamped umbilical cord provides objective information on the severity and duration of any lack of oxygen during labor. Such assessment of the acid-base status of umbilical

cord blood has recently been recommended by the British Royal College of Obstetricians and Gynecologists (**Royal College of Obstetrician and Gynecologists, 1993**).

Samples of blood may be taken from the umbilical cord of the neonate immediately on delivery, and a blood gas analysis machine measures the pH, partial pressure of carbon dioxide (pCO<sub>2</sub>) and partial pressure of oxygen (pO<sub>2</sub>). A parameter termed base deficit of extracellular fluid (BDecf) can be derived from the pH and pCO<sub>2</sub> parameters (**Garibaldi et al .,1997**).

The fetal blood PH is an important diagnostic and prognostic parameter whether measured during pregnancy, during labor, or in cord blood after birth. Severe fetal acidemia is associated with increased perinatal mortality and increased risk for later impaired neurodevelopment (**Victory et al ., 2004**).

The Apgar scoring system is used to assess newborn infants for depression of cardiopulmonary and neurological function. Scoring is done at 1 and 5 minutes after birth.

It depends on 5 parameters (color, heart rate, respiration, reflex response to nose catheter, none muscle tone)

Apgar score = SUM (points for all 5 parameters)

**Interpretation:**

- Minimum score: 0
- Maximum score: 10
- The lower the score the more profoundly affected the infant is with scores under 5 considered serious.
- A low initial scores with no improvement in the 5 minute score is associated with neonatal problems including death. **(Alfirevic and Neilson , 1998).**