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The Influences Related with the Frequency of Neonatal Suffocation in Babies at the Maliana Hospital Timor-Leste (2025)

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Abstract

Introduction: *Perinatal suffocation is considered one of the major causes of brand-new deaths and neurological sequelae in babies, resulting from maternal-fetal conditions or complications during childbearing. The description by the Maliana Hospital showed that 201 babies died after birth and that 151 died at the age of 0-6 days and 8 died aged 7 to 28 days.*

Research Objective: *To analyze the issues related with the frequency of neonatal suffocation at the Maliana Hospital, Municipality of Bobonaro Timor-Leste.*

Research Methodology*: Reconducted a descriptive and analytical study of quantitative approach, collecting a sample of 100 records of babies of mothers with risk issues and used the Network of Reflection on Register of the midwife and the medical doctor.*

Research Results*: As motherly risk influences, 61% of mothers have parity higher than four broods, and maternal pathologies in the sample include Hypertension 37%, Preeclampsia/Eclampsia 25%, Anemia 25% and Diabetes 13%. Regarding the Hypertension, with mild degree 63%, and severe 38%; Preeclampsia/severe eclampsia 60% and mild 40%; in the degree of Mild Anemia (7 to 9 g/dl) 88%, and severe (<7g/dl) 12%; Type I Diabetes is 54% and Gestational Diabetes 46%; finally, premature membrane rupture is found in 51% of the sample. As for fetal risk issues for neonatal suffocation, polyhidrosis 30%, Man Condon 13%, Infection 31%, Weight <1500 grams 13%, Inadequate weight for gestational age 28%. In the risk influences on associated with delivery, we verified Forceps Delivery 13%, Prolapse of the cord 9% and Short Umbilical Cord 8%. In the evaluation of APGAR indices at the 1 minute verified or severe in 48 babies 62% and mild 39%; at 5^{a} minute, the APGAR Index was grave at 59% and 41%, lastly, it was found that in the APGAR index at 10 minutes, then Gave classification decreased*

4%, and leave or moderate 7%. At 10 minutes 89% of the sample.

***Conclusion**: Hospitals, health centers and Integrated Family in SISCa, should promote the four minimum visits for pregnant women, in order to create a program of activities, such as home visits to define the rich influences of mothers. Pregnant women need to deliver with midwives and mothers in a controlled and safe environment to reduce the brand-new and post-neonatal mortality rate according to government by Ministry of Health program (Tilman CB., et al, 2025).*

Keyword: Brand-new suffocation, Motherly influences, fetal factors, issues of the work of the pair to and newborn factors, Maliana Hospital of Municipality Bobonaro.

Introduction

Since a practical point of view, perinatal suffocation can be unspoken as a failure in the founding of normal breathing during the period of birth, due to the impairment of oxygenation, at the time of delivery and in the period of expulsion. Presently, maternal and infant mortality, as an indicator of public health issues, is an important global problem. One of the health problems that occur frequently at the time of birth of the baby is infant mortality as a result of asphyxiation[1]. If immediate nursing and midwives care is not provided to newborns with neonatal suffocation, they will have a low probability of survival. When the newborn has neonatal suffocation, the baby cannot breathe spontaneously and regularly, it is found that babies who experience fetal distress before birth usually suffer from asphyxiation[2]. The main causes of brand-new mortality are intrinsically related to health and care received before, during and after childbirth. Neonatal asphyxia and birth trauma are usually caused by lack of medical follow-up and lack of access to obstetric specialists, such as midwives who help at home cited by (Tilman CB., et al, 2025).

According to World Health Organization (WHO, 2022) vision, every year 120 million babies born worldwide, out of a total of 4 million (32 per 1,000), die at the age of 30 days (neonatal) and about 3.6 million (3%) of these babies have neonatal suffocation newborn babies in all world including Timor-Leste[4]. Mozambique, São Tomé and Principe, Timor-Leste, Guinea-Bissau and Brazil were evidenced by the decline in their infant mortality rates[5]. This is justified, perhaps, by the existence in our Constitution of the Democratic Republic of Timor-Leste in 2002, Part II, Title I, Article 18, on the protection of the child. The child is entitled to special protection by the family, the community and the Timor-Leste State cited by (Tilman CB., 2025)[6]. The 2009-2010 Public Health Survey in Timor-Leste shows that the maternal mortality rate is 557 per 100,000 live births[7]. Based on this description of Statistics in Health carried out by the Office of Information System in Health and Epidemiologic Surveillance under Ministry of Health, in the year 2022, the fertility rate is 5.7 children per woman of reproductive age, the rate infant mortality is 44 per 1,000 live births and the post-neonatal and neonatal mortality rate is 22 per r1. 000 live births. In the period of 2018, the number of neonatal mortalities, more specifically related to the age of 0 to 7 days, in health centers and in the reference and Maliana Hospital currently existing in Timor-Leste, is of 116. In more detail you can see the data of each municipality: the Municipality of Dili with 36 dead neonates, Viqueque with 23, Suai with 14, Ermera with 18, Lautem 13, Liquiça 12 and Ainaro

11. If we make a comparison between the years 2018 and 2019, in relation to the number of neonates killed in the Municipality of Bobonaro, we find that there was an increase of 73, in the number of deaths[8].

In the same document, the reports of the hospitals and health centers for the year 2018, report that 979 brand-new children had a weight of less than 2500 grams, and 203 died after birth. of the latter, 152 died aged 0-6 days and 9 died aged 7-28 days, that is, in the neonatal period[8]. The retrim of the Maliana Hospital, showed that 425 babies were born weighing less than 2500 grams, of which 127 died after birth. of these, 100 died at the ages of 0-6 days. [9] Based on the data presented above, we verified a high infant mortality rate in the Hospital, so we propose to research the issues associated with the intention of neonatal suffocation n the Maliana Hospital of Municipality Bobonaro Timor-Leste.

Research Objectives:

General objective: To analyze the issues associated with the incidence of brand-new suffocation at the Maliana Hospital Timor-Leste.

Specific objectives are:

- Identify the incidence of brand-new asphyxia or suffocation;
- Describe the issues associated with brand-new suffocation or asphyxia related to the woman, mother and brand-new fetus or baby;
- To verify the relationship of brand-new suffocation or asphyxia with the work performed by the midwife who attends the deliveries or babies.

Theoretical Framework

Suffocation is a baby state in which it does not breathe spontaneously and regularly at birth [10]. However, babies often experience suffocation only after childbirth. This problem is probably related to maternal health status, umbilical cord, problems with childbirth of problems in infants. Suffocation means, etymologically, shortness of breath the u shortness of breath. Clinically it is a syndrome characterized by sponsion the severe decrease of gas exchange oxo at the level of placenta of dealings, which results in hypoxemia, hypercapnia and tissue hypoxia, with metabolic acidosis [11]. Perinatal suffocation is a problem suffered by the fetus or newborn (NB), due to monooxygenation or malperfusion of multiple organs. Perinatal suffocation is an injury suffered by the fetus or NB due to poor oxygenation (hypoxia) and/or poor perfusion (ischemia) of multiple organs. Lactic acidosis is associated with hypoventilation and hypercapnia in the baby[12].

Perinatal unconsciousness has been defined as a delay in spontaneous breathing; low APGAR index (Appearance Pulse Grimace Activity Respiration Effort); cord blood acidosis; cardiotocographic registry abnormalities and also as clinical expression of post-asphyxia brain injury hypoxic-ischemic encephalopathy. There are evident signs that the prognosis after intrapartum asphyxia has improved in recent years cited by (Tilman CB., et al, 2025)[13]. The remaining cases, postpartum, are secondary to pulmonary, cardiovascular or neurological diseases of newborns (NB). Pathophysiological conditions that cause suffocation include lack of oxygen from cells, excessive retention of carbon dioxide, and metabolic acidosis. Babies who have suffered the most from the suffocation process are in a secondary apnea stage. Secondary apnea can quickly cause death if the baby is not really assisted by artificial respiration and, when necessary, by compres-

sion of the heart. Throughout secondary apnea, decreased cardiac frequency and blood pressure cause a change in skin color, from blue to white, in an effort to maximize blood flow to organs such as the heart, kidneys and glands that affect brand-new children WHO, 2022; Tilman CB., et al, 2025).

Table 1 - Brand-new suffocation actors (Coxey, 2019)[15]

Motherly influences:	Fetal issues:	Labor influences:	Brand-new issues
Parity (more than 4 children) Primiparity (over 35 years) Diabetes (any class) Hypertension Pris-eclampsia/eclampsia Anemia (hemoglobin rate below 10 g/dl) Prolonged premature membrane rupture Placenta previa Premature placental detachment Prepartum hemorrhage	Gematria Polyhydramnios Frequential or abnormal heart rhythm Intrauterine growth ritardando Premature delivery	Use of forceps (other than relief) Cesarean Prolonged Laboure Cord prolapses Umbilical cord circulars Cohort umbilical canal Dystonic childbirth	Childbirth suffocation Birth weight unsuitable for gestational age Skin, nails and umbilical cord impregnated with meconium Signs of respiratory distress

Incidence of neonatal suffocation in newborns (NB) (Infants who do not cry, without spontaneous breathing)

Intervention to prevent neonatal suffocation: Maintain Heat; position the baby's head correctly; Clean the airways (aspiration); Provide ventilation; Resuscitation care

amniotic fluid and pH of fetal blood. The conditions of the NB are evaluated in sequester, through three signs: respiration, heart rate c and color. The Apgar Index (Appearance Pulse Grimace Activity Respiration Effort) serves as a numerical and very practical report to describe the birth condition and recovery of babies when revived by health professionals cited by Tilman CB., et al, 2025).

Table. 2 - APGAR index sneezing.

Sign	0	1	2
Heart Rate	Absent	<100	>100
Respiration	Absent	Irregular	Crying hard
Muscle Tone	Stab wounds	Some bending of exterminators	Good drive
Reflexes (Nasal Stimulus)	Absent	Some movement	Sneezing
Color	Cia noise and/or pale	Rosy body and cyanotic extremities	Rosy

Apgar index value scores: Done at the 1st and 5th minute after birth[17].

- 7 to 10 = NB is fine (indicates that the child has no difficulty);
- 4 to 6 = NB requires vigilance, perhaps resuscitation (indicates moderate difficulty);
- < 4 = immediate resuscitation of the NB (indicates severe suffering).

Neonatal asphyxia can be prevented with the correct interventions, in the care of the NB, according to the following steps:

Step 1: P position the baby's head correctly: Correct position can open the airways: placing the baby's head to a small extent may be enough for the baby to start breathing (do not extend or flex the neck excessively); To maintain the baby's head position, you can place a small cloth that is folded under your neck or shoulders.

Step 2: L odd airways (aspiration)

- First do the aspiration of the mouth, and only after the nose; quickly, but carefully, use a 6-8F caliber catheter and insert < 5 cm into the mouth and < 3 cm into each nearing; The duration of suction must not exceed > 20 seconds; You should not suck the mucus more than twice. Note: Prolonged and deep aspiration can cause apnea.

Step 3: Ventilation

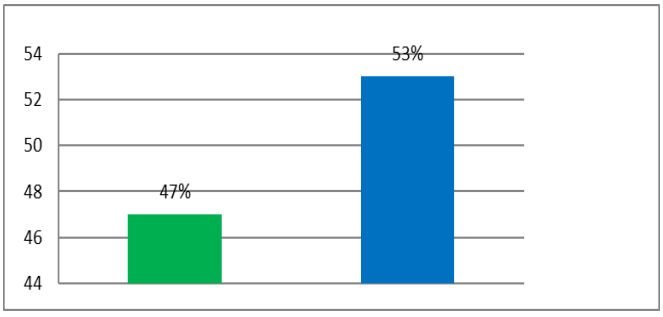
- With baby lying in the side position and with the head in extension, put on the mask, adapted to the pumping bag, covering the baby's face: use your thumb and second finger to adjust the mask gently against the face. Use the other fingers to adjust the lower jaw of the infant gently against the mask; If the mask is not well adapted, the air comes out of the side areas of the mask. Insufflation should be carried out slowly in the proportion of 2/3 insufflations, verifying that the chest wall expands each time the pumping bag is inflated;
- Always look at the baby's chest wall during ventilation to check if the baby has made the pulmonary expansion movement through the ventilation or if it is already normally breathing alone[18].

Research Methodology

It uses descriptive and analytical method of quantitative approach in the application of research. Population is a collection of individual units, which can be people with one or more characteristics in common, which pertains analyze. In this research or scan that, the population corresponds to all mothers and newborns with risk influences associated with neonatal suffocation hospitalized in the Maliana Hospital Timor-Leste wingers. The sample number is 100 records whose births occurred from 1 October to 30 December 2024. The data collection instrument used for the Gilgeous observation of the midwife and the medical doctor. The observation grid has 5 blocks, as follows: Block I: data of newborns, with 8 registration parameters; Block II: maternal influences, with 20 registration parameters; Block III: fetal issues, with 12 registration parameters; Block IV: labor and delivery influences, with 11 registration parameters; Hollow Belva: neonatal issues, with 9 record parameters. Data analysis we will investigate or use simple descriptive statistics to the computer program SPSS (Statistical package For the Social Sciences)[19] of version 24 in the results presented the table.

Research Result.

Graph 1. Distribution of re-born according to Gender Male and Female.

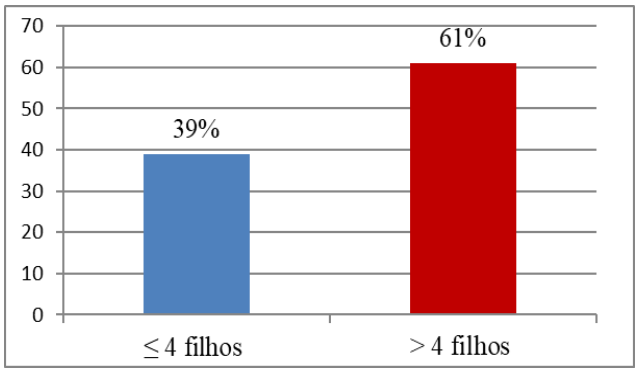


Verification that the majority of babies are female 53%, while 47% of babies are male.

Graph 2 Distribution of babies according to the diagnosis of brand-new suffocation.

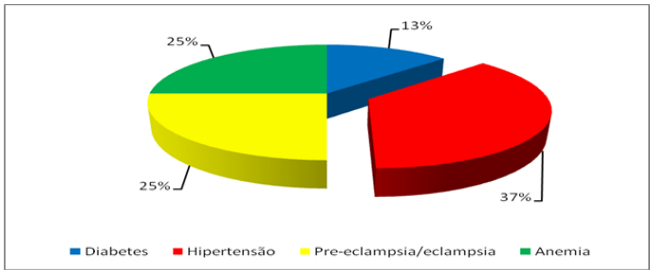
Vit is thought that the majority of babies 56% presented the diagnosis of brand-new suffocation. 25% of the sample did not present suffocation, and 19% of the sample died before the 1st minute, according to the APGAR index Value.

Graph. 3 Distribution of women according to the birth of brand-new.



Confirmation that the majority of women 61% had more than four children, with the remaining 39% four or fewer children.

Graph 4. Distribution of women according to maternal pathologies.



The most frequent and presented pathology by women was Hypertension, in 37%, followed by Pre-eclampsia/eclampsia 25%. Women with Anemia also represent 25% of the sample, and the remaining women had Diabetes 13%, based on the research result. (2025).

Table 3. Distribution of women according to the degree of hypertension.

Hypertension	F	%
Lightweight	23	6th 2
Serious	1st	3rd 8th
Total	37	100

Vit is considered that the most representative of the sample is mild hypertension, with 62% of the cases, presented hypertension grave 14 women with this diagnosis (38%).

Table 4. Distribution of women according to pre-eclampsia/Eclampsia Pre-eclampsia/eclampsia degree.

Pre-eclampsia/eclampsia	F	%
Serious	1st 15th	60
Lightweight	1st 0	40
Total	25	100

The maternal pathology pre-eclampsia/eclampsia, the one classified as Grave is the representative plus 15 (60%). However, pre-eclampsia/eclampsia Leve has a high value of 10 (40%), according the research result, 2025.

Table 5. Distribution of women according to the degree of anemia

Anemia	F	%
Lightweight (7 to 9g/dl)	2nd	88
Grave (< 7g/dl)	3	1st 2
Total	2nd 5th	100

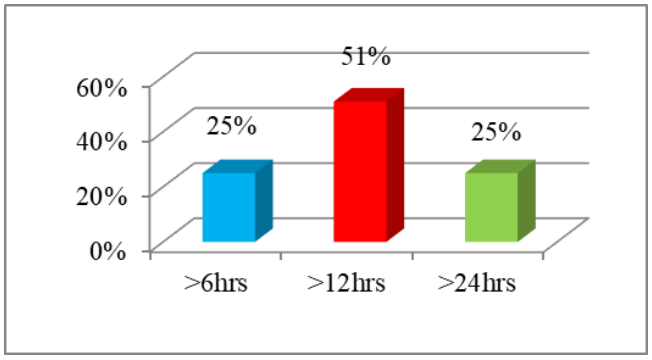
We think or according that in women with anemia, anemia Leve/moderate is more frequent 22 (88%), with consequence/ grave 3 (12%).

Table 6. Distribution of women according to the classification of diabetes according to type of the cases study.

Diabetes	F	%
Type I Diabetes	7	54
Gestational Diabetes	6	46
Total	13	100

I'm a record five. The time of premature rupture of membranes. Type one of diabetes 54% and gestational diabetes 46%, based on research result, 2025.

Graph 5. The time of premature rupture in membranes.



We felt that premature rupture of membranes more than 12 hours arose in 35 records, 51% of the sample, followed by rupture greater than 24 hours and less than 6 hours, with 25% each.

Table 7. Distribution of babies, according to fetal influences.

Fetal factors	F	%
Polyhydramnios		
Yes	30	30
No	70	70
Meconium		
Yes	13	13
No	87	87
Infection		
Yes	31	31
No	69	69
Newborn weight		
< 1500 grams	13	13
≥ 1500 to 2499 grams	19	19
2500 to 4000 grams	68	68
Birth weight unsuitable for gestational age		
Yes	28	28
No	72	72

The most representative factor is 31% infection, followed by polyhydramnios with 30%of the following. Fetal influence related to Amniotic Fluid nihonium appeared in 13% of the records. Regarding the weight of the NB related to gestational age, 28% presented inadequate weight, and of these 13% tin ham weight less than 1500 grams.

Table 8. The type of delivery and influences related to the umbilical cord.

Labor and childbirth	F	%
Type of childbirth		
Forceps	13	13
Cesarean	8	8
Spontaneous	78	78
Prolapse cord		
Yes	9	9
No	91	91
Short umbilical cord		
Yes	8	8
No	92	92

We found that the majority of babies were born by spontaneous delivery 78%, followed by delivery with Forceps, 13%, and by cesarean section with 8%. In 9% of the deliveries, Prolapse of the Cord occurred, and this situation is an emergency obstetrical that requires delivery by cesarean section, and in 8% of the deliveries there was a Short Umbilical Cord, a risk factor for the praetorium detachment of the placenta, on the basis of the research result cited by (Tilman CB., et al, 2025).

Table 9. Distribution of according to Indices then APGAR at the 1st and 5th minute.

APGAR Index	Apgar indices 1 minute		Apgar indices 5 minutes	
	F	%	F	%
Lightweight (4 to 6)	29	38	40	59
Grave (<4)	48	62	28	41
Total	77	100	68	100

Regarding the APGAR Index at the first minute, the majority of the NB (62%), had a classification of Grave (AI<4) and 38% presented a Mild classification. At the fifth minute the APGAR Index reverted, in these two situations, to 40 records with classification moderate or Leve (59%) and 28 records (41%) with severe classification.

Table 10. Distribution of babies, according to indices APGAR at 10 minutes.

Apgar indices 10 minutes	F	%
Record 2 to 4	3	4
Take 4 to 6	6	7
Normal 7 to 9	72	89
Total	81	100

Discussion

The moment of birth is crucial for the baby, the brain is the most delicate and noble of the 3rd response of the human body. Since this is not the case, the neonatologist has to act quickly, because the lack of oxygenation can lead to serious sequelae such as cerebral palsy or other neurologic problems, if not quickly treated. This lack of oxygenation is defined as p and prenatal anoxia or neonatal suffocation

cited by (WHO, 2022; Tilman CB., et al, 2025)[20]. One newborn care with asphyxia may present convulsions, weight loss accentuated by difficulty in starting and maintaining breastfeeding and diffuse respiratorial service. Respiratory difficulty manifests itself through a respiratory rate of less than 30 breaths per minute. Thus, it seems fundamental or basic to pay attention, especially to health personnel (both midwives and physicians), the importance of women's health surveillance, especially during pregnancy women, in order to reduce the presence of pathology that may constitute a risk influence for neonatal suffocation, such as hypertension and pre-eclampsia, providing health education to mothers to avoid brand-new suffocation cited by (WHO, 2022; Tilman CB., at al, 2025)[21].

Hypertension is the most common cardiovascular disease during pregnancy and even during the fertile years of women 2[2]. Complications resulting from hypertensive disease are, alongside infection and bleeding, the main cause of maternal death in most specialized services. Gestational pretensions correspond to cases of increased blood pressure, without proteinuria, after the 20th week of pregnancy, returning the blood levels elevated to normal in the post-partum period (12 weeks)[23]. Late or transient events or gestational hypertension, defined as the development of increased pressure values, occurring antepartum, labor or in the first 24 hours post-partum, without other signs of preeclampsia or pre-existing hypertension. Normal blood pressure should return to normal within 10 days after delivery[24].

Among all the pathologies that manifest or worsen during pregnancy, preeclampsia/eclampsia is the most frequent and the one that is accompanied by higher maternal and perinatal morbidity and mortality, characterized by the presence of hypertension, proteinuria and edemas, in addition to other alterations. In developing countries such as Timor-Leste, hypertension in pregnancy, broad or broad sense, is one of the main causes of mortality. According to the data obtained in this research, severe preeclampsia/eclampsia presented 60% of the total of the 25 cases. Mildréeclampsia, diastolic blood pressure is less than 100 mmHg, proteinuria is 1+ or 2+ in the reagent strip, many women have edema in the face and hands and weight gain is observed. From Sousa (2019) severe preeclampsia presents several signs and symptoms that indicate the severity of preeclampsia, there are criteria that define it as those proposed by Picher and MacDonald (2015): BP=160/110 mmHg in two shots with an interval of 6 hours (pregnant at rest), oliguria (diuresis < 400 ml/day), proteinuria (> 5 g/24h), headache, epigastria and visual disorder. As the situation increases, cyanosis, pulmonary edema, pain in the right hypochondria, thrombocytopenia (<100,000), microangiopathic hemolytic anemia, jaundice or abnormal liver function may occur, and the pregnant woman may suffer from seizures.

Specific competencies to prevent and treat this pathology include; identifying the risk issues for preeclampsia and eclampsia, obstetric and fetal development, and tough care for seizure (Tilman CB., et al, 2025). In relation to prenatal consultations, there was a greater prevalence of babies with suffocation among mothers who underwent up to 4 prenatal 2[5] Pre-eclampsia and eclampsia as a complication of hypertension that is present before pregnancy, or diagnosed before 20 weeks of gestation, which makes it imperative to control hypertension throughout pregnancy and before childbirth 2[5]. In the sample studied verify, 88% of mild anemia was found, and this is a known pathology, not those

pregnant in Timor-Leste. In pregnancy with a single fetus, maternal needs range from 800 to 1,000 mg of iron, from 300 to 350 mg for the formation of the placental fetus unit, in addition to the amount available to expand the maternal hemoglobin mass. About 90% of the total iron requirement is used in the last trimester of pregnancy. Counseling, education and help is needed for pregnant women to understand this need. Anemia in pregnant women can be defined as a condition in which hand myoglobin levels are below normal 11gr %, which can cause hypoxia and reduced blood flow to the uterus, which will lead to reduced oxygen flow to the placenta and fetus, and can use interruption of breathing. Diabetic patients are at high-risk hypoglycemia the first three disulfide of the newborn, even when they eat well. Our sample presented 7 participants with type 1 diabetes (54%), and 6 with gestational diabetes (46%). To reduce the impact on the mother, before conception, a careful evaluation of the presence of chronic complications of diabetes should be carried out, as some may lead to increased morbidity for the pregnant woman. On the other hand, the abnormal metabolic environment caused by hyperglycemia has a significant impact on pregnancy and the fetus or baby to have carefully, so this whole situation should be treated and controlled before pregnancy[26].

When the newborn baby (NB) has mild breathing difficulties, interventions to prevent neonatal suffocation include maintaining heat, positioning the baby's head correctly, cleaning the breathing pathways (aspiration) and allowing amici and breastfeeding to be important. If the difficulty is maintained and suffocation is severe it may be necessary to provide assisted ventilation. These interventions should be validated with the pediatrician or neonatologist, who should perform a complete examination of the NB to establish the therapeutic plan that best appropriates the situation[27]. In the present study, the records reveal that at the first minute, the majority of newborns (62%) had a severe classification, with APGAR index below 4, and 38% presented a mild classification (score between 4 and 6). However, in the five-minute evaluation, this situation reversed, moving to 40 records with a levee rating (59%) and 28 records (41%) with a severe rating. That is, after adequate intervention to support the vital functions of the NB, particularly with regard to the respiratory, there was a recovery of the APGAR score. When we analyzed the records of the APGAR index evaluation at 10 minutes, we found that most of the NB (89%) already had a normal score of 7/9, according to the scanning research result cited by (Tilman CB., et al, 2025).

Conclusion

Perinatal unconsciousness is an injury suffered by the fetus or newborn (NB), due to poor oxygenation or poor perfusion of multiple organs. From the results of this study, comparing with the references in the literature, the issues associated with the occurrence of neonatal suffocation were identified in this group of newborns: multiparity, hypertension, preeclampsia/eclampsia, anemia, premature rupture of membranes greater than 12 hours, polyhydramnios and infection. The diagnosis of neonatal suffocation is made from the evaluation or evaluation of the five parameters that constitute the APGAR Index (Heart Rate; Breathing; Muscle Tone; Reflexes; Color), scored from 0 to 2 according to the characteristics of each parameter that the newborn presents. As mentioned above, a9/10 APGAR index score at the first minute is considered optimal and reveals an NB without respiratory, cardiac and

neuromuscular difficulties.

Bearing in mind the pattern referenced, the data obtained in our study reveal that, unfortunately, there is still a high number of newborns who have an APGAR index between 4 and 6, at the 1st minute of life, which places them in the classification of severe to mild suffocation. Although we recognize that, at the 5th minute of life there was a recovery in the APGAR score (reduction of 34 records in the severe classification and increase of two records in the levee classification) and that at the 10th minute most newborns already had a score of 7/9, we have to mourn the death of 19% of the newborns, who died before the 1st minute according to the records obtained, probably related to complications of pregnancy and/or childbirth, which makes it urgent to identify and establish concrete strategies aimed at reducing neonatal and infant mortality, there is national and international level according to this study implementation in field conditions cited by (WHO, 2022; Tilman CB., et al, 2025).

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