



Study of sudden death among infants for the period 2015 – 2018

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Abstract

Background: Sudden unexpected infant death (SUID) is a term used to describe the sudden and unexpected death of a baby less than 1 year old in which the cause was not obvious before investigation.

Aim of study: To determine the prevalence of sudden death among all infants death attend to forensic medicine department. To study these death in relation to gender, age, date of death and cause of death .

Methods : This study done on Iraqi infants below one year old. That infants die without clear causes and send to forensic medicine for autopsy and full investigations to discover suspected causes of death. The cases where collected are 117 infants. This study done through 4 years (2015-2018) in Iraq – Diyala governorate health.

Results: The prevalence of sudden death among all infants death attend to forensic medicine department was 65%.

About 43.5% of cases were cot death, About 30% respiratory infections , About 17% gastrointestinal infections, And about 7% antemortem thrombus inside the heart.

Keywords: SUID, forensic medicine, antemortem thrombus.

Introduction

Sudden unexpected infant death (SUID) is a term used to describe the sudden and unexpected death of a baby less than 1 year old in which the cause was not obvious before investigation. These deaths often happen during sleep or in the baby's sleep area.

Understanding the Problem

About 3,500 babies in the United States die suddenly and unexpectedly each year. A thorough investigation is necessary to learn what caused these deaths. Sudden unexpected infant deaths include sudden infant death syndrome (SIDS), accidental suffocation in a sleeping environment, and other deaths from unknown causes.

Although the SUID rate has declined since 1990s, significant racial and ethnic differences continue.

Different practices in investigating and reporting SUID can affect the ability to reliably monitor SUID trends and risk factors at the state and national level. Additionally, because parents or caregivers do not usually see these deaths as they happen, investigators may not be able to get a clear description of the circumstances surrounding the death, which are necessary for determining the cause.

Fast Facts

In 2016, there were 3,607 sudden unexpected infant deaths (SUID) in the United States. These deaths occur among infants less than 1 year old and have no immediately obvious cause.

The three commonly reported types of SUID include the following:

- SIDS.
- Unknown cause.
- Accidental suffocation and strangulation in bed.

In 2016, there were about 1,500 deaths due to SIDS(42%), 1,200 deaths due to unknown causes(34%), and about 900 deaths due to accidental suffocation and strangulation in bed (24%).

- Sudden infant death syndrome (SIDS) rates declined considerably from 130.3 deaths per 100,000 live births in 1990 to 38.0 deaths per 100,000 live births in 2016.
- Unknown cause infant mortality rates remained unchanged from 1990 until 1998, when rates began to increase. In 2016, the unknown cause mortality rate in infants was 31.6 deaths per 100,000 live births.

Sudden infant death syndrome (SIDS)

Sudden infant death syndrome (SIDS) is the unexplained death, usually during sleep, of a seemingly healthy baby less than a year old. SIDS is sometimes known as crib death because the infants often die in their cribs.

Although the cause is unknown, it appears that SIDS might be associated with defects in the portion of an infant's brain that controls breathing and arousal from sleep.

Researchers have discovered some factors that might put babies at extra risk. They've also identified measures you can take to help protect your child from SIDS. Perhaps the most important is placing your baby on his or her back to sleep.

Causes

A combination of physical and sleep environmental factors can make an infant more vulnerable to SIDS. These factors vary from child to child.

Physical factors

Physical factors associated with SIDS include:

- Brain defects. Some infants are born with problems that make them more likely to die of SIDS. In many of these babies, the portion of the brain that controls breathing and arousal from sleep hasn't matured enough to work properly.
- Low birth weight. Premature birth or being part of a multiple birth increases the likelihood that a baby's brain hasn't matured completely, so he or she has less control over such automatic processes as breathing and heart rate.
- Respiratory infection. Many infants who died of SIDS had recently had a cold, which might contribute to breathing problems.

Sleep environmental factors(6,7,8)

The items in a baby's crib and his or her sleeping position can combine with a baby's physical problems to increase the risk of SIDS. Examples include:

- Sleeping on the stomach or side. Babies placed in these positions to sleep might have more difficulty breathing than those placed on their backs.
- Sleeping on a soft surface. Lying face down on a fluffy comforter, a soft mattress or a waterbed can block an infant's airway.
- Sharing a bed. While the risk of SIDS is lowered if an infant sleeps in the same room as his or her parents, the risk increases if the baby sleeps in the same bed with parents, siblings or pets.
- Overheating. Being too warm while sleeping can increase a baby's risk of SIDS.

Risk factors

Although sudden infant death syndrome can strike any infant, researchers have identified several factors that might increase a baby's risk. They include:

- **Sex.** Boys are slightly more likely to die of SIDS.
- **Age.** Infants are most vulnerable between the second and fourth months of life.
- **Race.** For reasons that aren't well-understood, nonwhite infants are more likely to develop SIDS.
- **Family history.** Babies who've had siblings or cousins die of SIDS are at higher risk of SIDS.
- **Secondhand smoke.** Babies who live with smokers have a higher risk of SIDS.

- **Being premature.** Both being born early and having a low birth weight increase your baby's chances of SIDS.

Maternal risk factors(7,8,9)

During pregnancy, the mother also affects her baby's risk of SIDS, especially if she:

- Is younger than 20
- Smokes cigarettes
- Uses drugs or alcohol
- Has inadequate prenatal care

Prevention

There's no guaranteed way to prevent SIDS, but you can help your baby sleep more safely by following these tips:

- **Back to sleep.** Place your baby to sleep on his or her back, rather than on the stomach or side, every time you — or anyone else — put the baby to sleep for the first year of life. This isn't necessary when your baby's awake or able to roll over both ways without help.

Don't assume that others will place your baby to sleep in the correct position — insist on it. Advise sitters and child care providers not to use the stomach position to calm an upset baby.

- **Keep the crib as bare as possible.** Use a firm mattress and avoid placing your baby on thick, fluffy padding, such as lambskin or a thick quilt. Don't leave pillows, fluffy toys or stuffed animals in the crib. These can interfere with breathing if your baby's face presses against them.

- **Don't overheat your baby.** To keep your baby warm, try a sleep sack or other sleep clothing that doesn't require additional covers. Don't cover your baby's head.

- **Have your baby sleep in in your room.** Ideally, your baby should sleep in your room with you, but alone in a crib, bassinet or other structure designed for infants, for at least six months, and, if possible, up to a year.

Adult beds aren't safe for infants. A baby can become trapped and suffocate between the headboard slats, the space between the mattress and the bed frame, or the space between the mattress and the wall. A baby can also suffocate if a sleeping parent accidentally rolls over and covers the baby's nose and mouth.

- **Breast-feed your baby, if possible.** Breast-feeding for at least six months lowers the risk of SIDS.(10)

- **Don't use baby monitors and other commercial devices that claim to reduce the risk of SIDS.** The American Academy of Pediatrics discourages the use of monitors and other devices because of ineffectiveness and safety issues.

- **Offer a pacifier.** Sucking on a pacifier without a strap or string at naptime and bedtime might reduce the risk of SIDS. One caveat — if you're breast-feeding, wait to offer a pacifier until your baby is 3 to 4 weeks old and you've settled into a nursing routine.

If your baby's not interested in the pacifier, don't force it. Try again another day. If the pacifier falls out of your baby's mouth while he or she is sleeping, don't pop it back in.

- **Immunize your baby.** There's no evidence that routine immunizations increase SIDS risk. Some evidence indicates immunizations can help prevent SIDS.

Results

prevalance of sudden death among all infants death attend to forensic medicine department was 65% .

The cases where collected are 117 infants from Iraq – Diyala governorate health ,through 4 years (2015-2018)

Table (1) Distribution of death according to gender.

Gender	NO. of death	%
Males	62	53
Females	55	47
Total	117	100

Table (2) Distribution of death according to age.

Age	NO. of death	%
1Month	16	13.675
2 Month	28	23.931
3	10	8.547
4	9	7.692
5	18	15.384
6	9	7.692
7	6	5.128
8	6	5.128
9	4	3.418
10	-	-
11	1	0.854
12	10	8.547
Total	117	100

3-Distribution of death according to date of death.

Month	NO. of death	%
January	20	17.094
February	15	11.965
March	4	3.418
April	9	7.692
May	6	5.128
June	5	4.273
July	3	2.564
August	14	11.965
September	10	8.547
October	7	3.954
November	14	11.965
December	8	6.837
Total	117	100

About half of infants die in Winter(January,February,November and December)

Table (4) Distribution of death according to cause of death.

Cause of death	NO. of infants	%
Cot death	51	43.5
Respiratory infection	35	30
Gastrointestinal infections	17	14.5
Antemortem cardiac thrombus	8	7
Respiratory distress syndrome	3	2.5
Liver infection	1	0.854
Intestinal obstruction	1	0.854
Congenital heart disease	1	0.854
Total	117	100

Distribution of death in one cause in relation to age.

I made study on the 1st 4 causes which has large number of infants .

1-Cot death(SDIS) Table (5)

Age	NO. of infants	% to this cause
Less than 3months	30	58.823
3-6m	12	23.529
6-9m	6	11.764
9-12m	3	5.882
Total	51 infants	100

That mean about 60% of dead infants by SDIS are below 3 months of age .and about 23.5% less than 6 months of age .

2-Respiratory infections Table (6)

Age	NO. of infants	% to this cause
Less than 3months	10	28.571
3-6m	16	45.714
6-9m	5	14.285
9-12m	4	11.428
Total	35 infants	100

The respiratory infections are more in infants less than 6months old , because of low immunity ; due to decrease breast feeding and bad cares give

To these infants , such as heavy cloths and bedding.not clean nose of infant in cold....ect.

3-Gastrointestinal infections . Table (7)

Age	NO. of infants	% to this cause
Less than 3months	2	11.764
3-6m	6	35.294
6-9m	1	5.882
9-12m	8	47.058
Total	17 infants	100

GIT infections affect the infants of age more than 3 months , because of bottle feed ,spoon feed,unsterile preparation and decrease of breast feeding.

4-Antemortem thrombus in side the heart.Table (8)

Age	NO. of infants	% to this cause
Less than 3months	2	25
3-6m	5	62.5
6-9m	1	12.5
9-12m	1	12.5
Total	8 infants	100

The most of cases with intracardiac clot as a cause of death give a features of dehydration on postmortem examination or history of surgical operation or accidental injures that after more than many days of operation without obvious post injures complications.

Discussion

After collection and study of cases that dead suddenly without clear history ; I find the followings;

1-The males were (53%) of total cases while females were (47%)

That mean male effected more than female by USDI. The exact causes are not clear but may be due to ;male more heavy weight than female and his head go down on the soft bedding and pillow, also psychosocially; a lot of parents and relatives bring the male in same bed and close to them more than female.

2- About half of infants 48.717% die in Winter(January, February, November and December) that because of over covering of baby in his bed ;specially the cover reach the face and interrupte the breathing of baby.

3-Age group less than 3 months are higher effected by USDI (COT DEATH) and also effected by respiratory infections.

These group has many aggravated factors which increase their suffering of sudden death , some of these factors ; the respiratory system and arousal not well developed.

The infants are depend on nose more on mouth to breath ,Any nasal obstruction in cold as example may lead to apnea and death.

Infants are low immunity (immune system not well developed) and almost of all infants are bottle feed ,leave breast feed which has good elements of immunity.

4-Age group more than 6 months more effected by GIT infection.

That because of many factors; the breast feed usually ended,(that has good element against diarrhea), food other than milk induced in this age and bad preparation, unsteriled.

Dentation and oral induction of foreign bodies by infants its self or by caregivers, unclean of infants and caregivers hands before eating.

Propositions

Really cannot prevent sudden unexpected death of infants(SUDI) totally but we have many behaviors and factors that to decrease (SUDI).

We should remember that the causes of SUDI are;
1-sudden infant death syndrome(SIDS)2-Unknown cause3-Accidental suffocation and strangulation in bed.

IN SIDS the causes are ;

1-Phisical factors (brain defects, low birth weight, respiratory infections)

2-Sleep environmental factors (sleep on the stomach, sleep on the soft surface, sharingbed, over heating)

-The boys more likely to die by SIDS .

-Age group between 2nd-4th months ,nonwhite infant, sibling that die by SIDS ,secondhand smoke and being premature more to die by SIDS.

3-Mother affect her baby if she is;

-Younger than 20 years.

-smoke cigarettes or uses drugs or alcohol.

-Has inadequate prenatal care.

So we should prevent infant death through change all factors that lead to infant death.

Prevention

There are no guaranteed ways to prevent SIDS, but you can help your baby sleep more safely by the following these tips;

1-Place your baby to sleep on his back.

2-Use a firm mattress ,avoid fluffy padding,donot leave pillows or fluffy toys in the crib.

3-Donot over heat your baby.

4-your baby should sleep in your room with you but alone in acrib.

5-Breast –feed your baby if possible.

6- Donot use baby monitors and other commercial devices that claim to reduce the risk of SIDS.

7-Pacifier with out string at naptime and bed time might reduce the risk of SIDS.

8- Immunized your baby ,that some evidence indicates it help to prevent SIDS.

9- Finally we should look on the causes of unexpected sudden infant death(USID) and try to prevent it,to maintain the good results.

(GOOD HEALTH FOR ALL)

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Access this Article in Online	
	Website: www.ijarbs.com
	Subject: Medical Sciences
Quick Response Code	
DOI: 10.22192/ijarbs.2019.06.08.002	

How to cite this article:

Mahdi Salman Qadoori, Ahmed Sadik Dawood . (2019). Study of sudden death among infants for the period 2015 – 2018. *Int. J. Adv. Res. Biol. Sci.* 6(8): 17-23.

DOI: <http://dx.doi.org/10.22192/ijarbs.2019.06.08.002>