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RESEARCH ARTICLE

RELATIONSHIP BETWEEN SUDDEN INFANT DEATH SYNDROME AND MOTHER SMOKING.

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Abstract

There is substantial evidence to conclude that maternal smoking caused a marked increased in SIDS. There have been almost 16 SIDS children and 76 death children as control group that have examined this relationship and all indicate an increased risk. Passive smoking during pregnancy has a certain relationship to preterm birth and spontanusly abortion. Concert complications are exposed women with insufficient health care and an increased incidence of other pathological conditions.

Introduction:-

Cigarette smoking is one of the most significant preventable causes of death and illness in the world. It accounts for some 400 000 deaths per year in the USA, approximately 100 000 in the UK and 4.9 million worldwide. Due to smoking tobacco being among the leading causes of many diseases such as lung cancer, heart attacks, COPD, erectile dysfunction, and birth defects. Among the diseases that can be caused by smoking are vascular stenosis, lung cancer, heart attacksand chronic obstructive pulmonary disease. Smoking during pregnancy may cause ADHD to a fetus. Male and female smokers lose an average of 13.2 and 14.5 years of life, respectively. At least half of all lifelong smokers die earlier as a result of smoking. The corresponding estimates for lifelong nonsmokers are a 1.1% probability of dying from lung cancer before age 85 for a man of European descent, and a 0.8% probability for a woman.

Tobacco smoke is a complex mixture of over 5,000 identified chemicals, of which 98 are known to have specific toxicological properties. The most important chemicals causing cancer are those that produce DNA damage since such damage appears to be the primary underlying cause of cancer.

Table 1:- The most genotoxic cancer causing chemicals in cigarette smoke

Compound	Microgram per cigarette	Effect on DNA
Isoprene	952.0	Single and double strand breaks in DNA.
Formaldehyde	60.5	DNA-protein crosslinks causing chromosome deletions and re-arrangements.
Ethylene oxide	7.0	Hydroxyethyl DNA adducts with adenine and guanine.
Acrylonitrile	29.3	Oxidative stress causing increased 8-

		oxo-2'-deoxyguanosine.
Acrolein	122.4	Reacts with deoxyguanine and forms DNA crosslinks, DNA-protein form
1,3-butadiene	105.0	Global loss of DNA methylation (an epigenetic effect) as well as DNA adducts.

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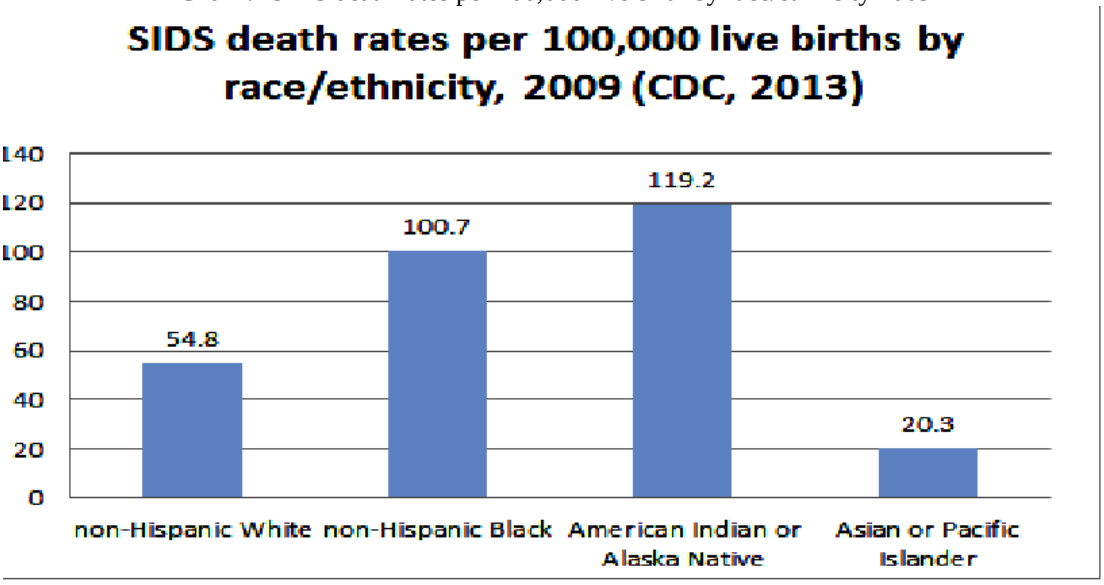
Sudden death infant syndrome :

Sudden infant death syndrome (SIDS), also known as cot death or crib death, is the sudden unexplained death of a child less than one year of age.Diagnosis requires that the death remains unexplained even after a thorough autopsy and detailed death scene investigation.

Globally SIDS resulted in about 22,000 deaths as of 2010, down from 30,000 deaths in 1990. Rates vary significantly by population from 0.05 per 1000 in Hong Kong to 6.7 per 1000 in American Indians.SIDS was responsible for 0.54 deaths per 1,000 live births in the US in 2005. SIDS deaths in the US decreased from 4,895 in 1992 to 2,247 in 2004.But, during a similar time period, 1989 to 2004, SIDS being listed as the cause of death for sudden infant death (SID) decreased from 80% to 55%. According to John Kattwinkel, chairman of the Centers for Disease Control and Prevention (CDC) Special Task Force on SIDS "A lot of us are concerned that the rate (of SIDS) isn't decreasing significantly, but that a lot of it is just code shifting".

In 2013, there are persistent disparities in SIDS deaths among racial and ethnic groups in the U.S. In 2009, the rates of death range from 20.3 for Asian/Pacific Islander to 119.2 for American Indians/Alaska Native. African American infants have a 24% greater risk of having a SIDS related death and experience a 2.5 greater incidence of SIDS than in Caucasian infants.

Graf1:- SIDS death rates per 100,000 live birth by race/ethnicity 2009



Risk factors:

The frequency of SIDS does appear to be influenced by social, economic, and cultural factors, such as maternal education, race or ethnicity, and poverty.SIDS is believed to occur when an infant with an underlying biological vulnerability, who is at a critical development age, is exposed to an external trigger

SIDS rates are higher for infants of mothers who smoke during pregnancy.SID correlates with levels of nicotine and derivatives in the infant.Nicotine and derivatives cause significant alterations in fetal neurodevelopment.
Placing an infant to sleep while lying on the stomach or the side increases the risk. Espicaly at two to three months of age. Sharing bed with parents espicaly during first 3month of life is one of risk factors of SIDS. Elevated or reduced room temperature also increases the risk,as does excessive bedding, clothing, soft sleep surfaces, and stuffed animals.Bumper pads may increase the risk and, as there is little evidence of benefit from their use, they are not recommended.

SIDS rates decrease with increasing maternal age; with teenage mothers at greatest risk .Low birth weight is a significant risk factor. In the United States from 1995 to 1998, the SIDS death rate for infants weighing 1000–1499 g was 2.89/1000, while for a birth weight of 3500–3999 g, it was only 0.51/1000.Premature birth increases the risk of SIDS death roughly fourfold.From 1995 to 1998, the U.S. SIDS rate for births at 37–39 weeks of gestation was 0.73/1000, while the SIDS rate for births at 28–31 weeks of gestation was 2.39/1000.

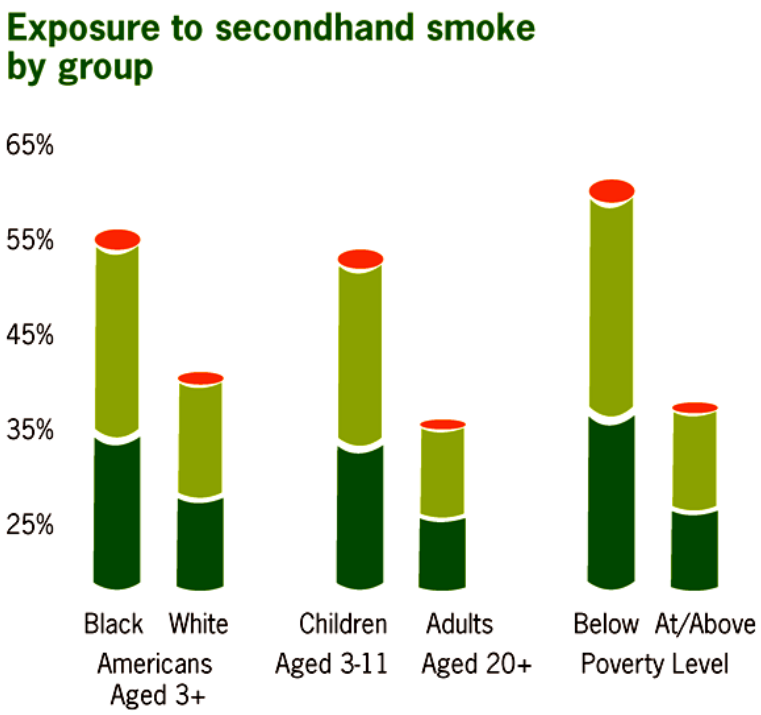
Genetics plays a role, as SIDS is more prevalent in males. There is consistent 50% male excess in SIDS per 1000 live births of each sex. Given a 5% male excess birth rate, there appears to be 3.15 male SIDS cases per 2 female, for a male fraction of 0.61. About 10 to 20% of SIDS cases are believed to be due to channelopathies, which are inherited defects in the ion channels which play an important role in the contraction of the heart

Drinking of alcohol by parents is linked to SIDS. A particular study found a positive correlation between the two during New Years celebrations and weekends.

Passive smoking:-
Passive smoking is the inhalation of smoke, called second-hand smoke (SHS), or environmental tobacco smoke (ETS), by persons other than the intended "active" smoker.

In 2006 report, the US Surgeon General concludes: "The evidence is sufficient to infer a causal relationship between exposure to secondhand smoke and sudden infant death syndrome."[Secondhand smoking has been estimated to be associated with 430 SIDS deaths in the United States annually.Nicotine crosses the placenta and is found in the breast milk of mothers who smoke as well as mothers who inhale passive smoke. Maternal passive smoking increases the risk of non-syndromic orofacial clefts by 50% among their children. Maternal exposure to secondhand smoke exposure during pregnancy is associated with an increased risk of neural tube defects. a 2014 meta-analysis found that maternal secondhand smoke exposure increased the risk of miscarriage by 11%.

Graf 2:- exposure to passive smoke



Results:-

Significant negative impact is also complex effect on the total weight of newborns of smoking mothers. the gap reaches 250-300 g in our study was the average of 142 g, which is significantly difference p <0.01of new experimental work implies that the parts sidestream "cigarette smoke after 5 - weeks Exhibitions are able to increase the excitability of C fibers in the lungs thus indirectly influence the reflective enhance the effect of substance P in NC. Solitary tract and cause as well as prolonged apnea. This may passively smoking involved in the eventual emergence of SIDS, and the occurrence of apnea, bronchoconstriction and mucus hypersecretion. it has also been found that children of smoking mothers during pregnancy died later and longer under hypoxic test than children nonsmoking mothersChildren smokers have more frequent and longer lasting obstructive apneaDuring smoking expectant mothers Nicotine probably due to direct vasoconstrictor Fetal HypoxiaNicotine was detected in the placenta, the amniotic fluid and fetal blood of smoking mothers during pregnancyIn this context, interesting finding of pulmonary neuroendocrine cell hyperplasia in SIDS children who smoked during pregnancy. Their dysfunction (with vasoconstriction and bronchoconstriction effect) may contribute to the pathophysiology of SIDSand from our previous observations suggest the children Passive smoking significant risk factor for SIDS.

Table 2:- The share of smokers in families with occurrences SIDS

Household members	Smoking	Counts		Statistical significance
Mother	no	SIDS (16) 6	Inspection (76) 66	P < 0.01 P < 0.01
Mother	Yes Only during pregnant Postpartum	9 10	8 10	P < 0.01 P < 0.01
Father	No Yes	3 13	47 29	P < 0.01 P < 0.05
Other members	Yes	9	11	P < 0.01

Passive smoking during pregnancy has a certain relationship to preterm birth and spontaneously abortion.Concert complications are exposed women with insufficient health care and an increased incidence of other pathological conditions(anemia, malnotration, drug addication etc.)

Based on the work in this area and to describe their own experience called fetal tobacco syndrome, which is actually proportional fetal growth retardation, associated with smoking at least five cigarettes per day during pregnancy and expectant mothers. On the other hand, the major finding of maternal smoking during pregnancy is a separate major factor in the development of obesity in school-age children. Here is manifested by a significant factor, intrauterine exposure to cigarette smoke on obesity as one of the major contributing factor "lifestyle diseases" and their adverse consequences.

Discussion:-

According to American academy of pediatrics recommended both maternal smoking during pregnancy and smoke in the infant's environment after birth are major risk factors for SIDS.

Mothers should not smoke during pregnancy or after the infant's birth.

There should be no smoking near pregnant women or infants. Encourage families to set strict rules for smoke-free homes and cars and to eliminate secondhand tobacco smoke from all places in which children and other nonsmokers spend time.

The risk of SIDS is particularly high when the infant bed-shares with an adult smoker, even when the adult does not smoke in bed.

Conclusion:-

Sudden infant death sundrome is unknown causes but some risk factor could be increase the mortality rate such as smoking , passive smoking bed share , young mother , Apparently life threatening event and ther is some factors could decrease the mortality such as breastfeeding and family education.

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