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Review Article

A REVIEW ON THE IMPACT OF ALCOHOL INTAKE DURING PREGNANCY

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Abstract:

Pregnancy is one of the most important events in any female's life. It is a physiological process that affect function of the body in several ways. Apart from the changes that take place inside the body, it become more vulnerable to the external environment and lifestyle of the mother. In many socities across the countries, use of alcohol is deeply rooted among people in daily or at different festivities. Alcohol being a psychoactive substance with intoxicating and dependence producing properties. Harmful intake of alcohol causes approximately 3 million death per year and overall burden of disease and injuries due to alcohol abuse is very high. This paper reviews about the habit of alcohol that has many ill effects not only on the mother during pregnancy but also on the growing fetus.

KEY WORDS: PREFNANCY, ALCHOL, FEMALE, LIFE STLYE, DISEASES

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INTRODUCTION:

During pregnancy consumption of alcohol is a significant social problem that may be allied with adverse perinatal consequences such as low birth weight (LBW), small for gestational age (SGA) or preterm newborns.[1] However, the relationship between alcohol consumption during pregnancy and adverse perinatal outcomes is still controversial [2] In addition, consumption of large amounts of alcohol during pregnancy is associated with occurrence of fetal malformations[3] mental retardation⁴ and behavioral and psychosocial disorders during childhood and adolescence.[4][5]

History of Alcohol Effects in Pregnancy

The history of maternal alcoholism and its effect on development of the offspring goes back to the Bible and to the early Greek mythology. Samuel the prophet forbids Samson's mother from drinking wine during her pregnancy because she is going to give birth to a child blessed by God with special power, and the bridal couple, in Carthage, was forbidden to drink wine in the wedding night to prevent a defective child birth. In 1834 a report to the House of Commons indicated that some of the alcoholic mothers gave birth to "a starved, shrivelled and imperfect look" infants and in 1900 Sullivan reported an increase in the rate of abortions and stillbirth as well as increased frequency of epilepsy among live-born infants of chronic alcohol abusing women [6]. The teratogenic effects of ethanol on human fetuses were first reported by Lemoine et al. in 1968, describing a common pattern of birth defects in 127 children born to alcoholic mothers in France. This included growth deficiency, psychomotor retardation, low IQ, and atypical EEG [7]. However, in these women alcohol was given in rather late phases of pregnancy, post the organogenetic period and therefore resulted in no morphologic changes and apparently only very little (if at all) effects on behavior. [8].

EPIDEMIOLOGY OF DRINKING IN PREGNANCY

It is very difficult to estimate the exact incidence of alcohol abuse in the pregnant Canadian population, however, a Health Canada survey published in 1995 showed that 67 percent of Canadian women are current drinkers. [10] This, however, does not imply that all these women have alcohol problems. The true prevalence of alcohol problems in women of childbearing age is therefore unknown, but it may be possible to estimate this number by extrapolating from smaller studies. For example, Stewart and Streiner surveyed 561 pregnant women over 20 weeks of

gestation, drawn from both urban and rural speciality and primary care practices in Ontario.[11] A general health questionnaire was used to obtain the data. Of the 466 respondents, 22.7 percent reported regular weekly drinking of 1.97 standard drinks, 8.2 percent reported drinking more than seven standard drinks, while three percent drank more than 14 standard drinks per week. Women who drank more than seven drinks per week were also more likely to be socially disadvantaged, unmarried, unemployed and users of tobacco and other drugs. These women were also more likely to have been physically abused and have emotional or psychiatric problems. Because the limitations of this study included the doubtful reliability of self-reporting as well as the possibility that the non-responders were more likely to be problem drinkers, it is likely that in this study the true prevalence of drinking in pregnancy was actually underestimated. The effect of gestational age at the time of interview may also be important as supported by data from Fried et al. who have shown that alcohol consumption actually decreases across trimesters.[12]

GENERAL AND MATERNAL EFFECTS

Alcohol abuse is associated with an increased risk of mortality from trauma, psychiatric and medical conditions, though mortality from coronary artery disease at low levels of consumption may be reduced. Rates of cancer of the mouth, pharynx, larynx, oesophagus and liver are also increased. An increased incidence of breast and colorectal cancer has been suggested.[13] Hypertension and haemorrhagic stroke have both been demonstrated to be markedly increased in patients abusing alcohol.[14] Finally, physical and mental abuse as well as motor vehicle accidents, violence and overall criminal behaviour have all been demonstrated to be increased in patients abusing alcohol. The alcohol-dependent pregnant patient is also exposed to the potential risk of premature labour associated with Withdrawal symptoms, include tremors, sweating and anxiety. These symptoms will typically occur within 12 to 48 hours of the patient's last drink and can be associated with fetal hypoxia. The risks of fetal distress and spontaneous abortion are increased. These risks are doubled in women who drink more than two drinks per day and more than tripled in women drinking more than three drinks per day on a chronic basis.[15]

EFFECTS ON BABY HEALTH

Fetal alcohol spectrum disorders (also called FASDs). Alcohol is the most common major teratogen and is a leading cause of mental retardation in our population. When a lady consume alcohol during

pregnancy it consequences a mental deficiency occur in 10 to 20 percent children with an IQ of between 50 and 80 suffer this mental deficiency as a direct result of in utero exposure to alcohol. The exact mechanism of teratogenicity have not been completely elucidated that may be multifactorial inference with protein synthesis [16] and placental transfer of amino acids [17] and glucose [18] has been suggested by finding hypoglycaemia, hypo-insulinaemia, decreased fetal thyroid hormones and decreased glycogen stores in the exposed fetus. [19] This may in fact contribute to the growth anomalies encountered in this population. Chronic maternal alcohol intake will alter the ratio of thromboxane and prostacyclin. [20] This could lead to vasoconstriction which in turn may expose the fetus to chronic hypoxaemia. This theory is supported by the finding of elevated erythropoietin levels in exposed fetuses. [21] Another possibility is that acetaldehyde, a metabolite of alcohol, may damage proteins, contributing to teratogenicity. The impairment of cell migration by alcohol during embryogenesis could contribute to the syndromes seen. There is also a possible genetic predisposition to fetal alcohol syndrome, and a certain susceptibility could explain the varied effects at different dosages. The fetal consequences of maternal ingestion are divided into two categories: fetal alcohol syndrome and alcohol-related effects. Fetal alcohol syndrome (FAS) is used to describe the constellation of physical growth and behavioural abnormalities resulting from high dose exposure in pregnancy. [22] The incidence of FAS has been estimated to be 0.3/1,000 in Western countries but up to 32 percent in chronic alcoholics. [23] The diagnosis of FAS requires at least one anomaly in each of three categories: craniofacial, growth and neurodevelopmental. It may or may not be associated with confirmed alcohol exposure. It is now recognized that a partial fetal alcohol syndrome can also be present and this diagnosis does require confirmed alcohol exposure. Fetal alcohol effects (FAE), on the other hand, are subdivided into alcohol-related birth defects which can include cardiac, skeletal, renal, ocular and auditory anomalies or in alcohol-related neurodevelopmental disorders, which can be manifested as central nervous system neurodevelopmental abnormalities or complex behavioural or cognitive abnormalities. Some of the effects of alcohol exposure in utero may lead to neonatal complications as well as later manifestations. The neonate may demonstrate central nervous system depression, irritability, restlessness, agitation and, rarely, death [24] Those fetuses manifesting early symptoms with intra-uterine growth restriction are especially at risk of early neonatal death as well as

respiratory and feeding difficulties, infections and long-term developmental anomalies. What remains to be determined is the threshold of maternal alcohol consumption after which the risk for development of fetal alcohol syndrome increases. In fact, at present much controversy exists. However, it is becoming more clear that fetal alcohol syndrome and fetal alcohol effects are much more likely to occur with continuous or heavy drinking. Social alcohol consumption has been found to have a small negative effect on fetal growth. Mills et al. verified that with one to two drinks per day a reduction in birthweight of 83 grams was present. [21] Similarly, the Euromac Study reported a deficit of 66 grams of birthweight per 120 grams of alcohol per week. [25] Adverse effects on neurodevelopment have been shown to occur only at higher levels of alcohol consumption. The Seattle Pregnancy and Health Study recently reported a decrease of five points in IQ in children of mothers drinking more than 250 grams of alcohol per week. [26]

PREMATURE BIRTH

This is when your baby is born before 37 weeks of pregnancy. Premature babies may have solemn health problems at birth and later in life.

Birth defects .

Birth defects are health conditions that are present at birth. Birth defects change the shape or function of one or more parts of the body. They can cause problems in overall health, how the body develops, or in how the body works.

Low birthweight (also called LBW).

when a baby is born weighing less than 5 pounds, 8 ounces.

Miscarriage.

This is when a baby dies in the womb before 20 weeks of pregnancy.

Stillbirth. when a baby dies in the womb after 20 weeks of pregnancy. [27]

Screening for alcohol

It can be used to improve health outcomes for both mother and child by:

- ✓ auxiliary mothers to condense or stop drinking
- ✓ identifying at-risk pregnancies earlier which can facilitate diagnosis and support for children prenatally exposed to alcohol [28]
- ✓ identifying at-risk drinking patterns in non-pregnant women to help to reduce the risk of alcohol exposure for unplanned pregnancies. [29] Drinking behaviour prior to pregnancy [30] is a strong predictor of alcohol consumption during pregnancy. [31] Women

want and expect to receive advice from health professionals about alcohol. Health professionals are seen as a trusted source, having expert knowledge, and being well-placed to support women in changing their drinking behaviour [32]. Pregnancy is a key opportunity for health professionals to support women to make long term changes to improve their health during and after pregnancy.

CONCLUSION:

Alcohol abuse specifically during pregnancy is a significant problem that led to certain diseases. It grossly affects mother and the foetus. Alcohol consumption is not safe in any trimester of the pregnancy. The disease burden is too high with the increasing rate of maternal mortality, increased rates of cancer, hypertension and haemorrhagic stroke. Alcohol consumption with the foetus leads to some serious defects and malformations from mental retardation to premature birth, miscarriage and still birth. Identifying the high risk pregnancy and checking the drinking patterns during or before pregnancy either in pregnant and non pregnant female may prove beneficial.

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