

Smoking and COVID-19: A Bane on Motherhood

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Abstract

The harmful effects of tobacco have been well known, studied and advertised, however tobacco is still consumed in different forms by all genders. Tobacco smoking during pregnancy is double trouble, considering the already high-risk state of the pregnant female. Smoking in pregnancy and current COVID-19 scenario poses additional challenge to mother and fetus. Nicotine and toxins including carbon monoxide have been proposed to cause maternal and fetal perilous impacts. More studies are needed to find various abnormalities associated with smoking in pregnancy.

Keywords

- ▶ Smoking
- ▶ Tobacco
- ▶ COVID-19
- ▶ nicotine

Introduction

India is the second greatest consumer of tobacco, with 28.6% people devouring tobacco in smoke and smokeless form.¹ According to the National Family Health Survey (2015–2016), the pervasiveness of general tobacco use among women was 6.8%.² As demonstrated by another assessment, dynamic tobacco openness was found to be 6.2% during pregnancy.³ Tobacco smoke is an airborne droplet, which contains nicotine, water, various alkaloids, and tar. Nicotine separated from leaves has physiological exercises in body and possesses reliance potential. Tar and various constituents of tobacco smoke have malignant growth potential and impact various organs.⁴ Tobacco is taken in various forms and is comprehensively ordered into two sorts—smoking type of tobacco: cigarette, *bidi*, cigar, hookah, and smokeless tobacco (SLT): *gutka*, *khaini*, *zarda*, *gul*, and snuff. Another type of smoking involves e-cigarettes. Electronic cigarettes is a battery-fueled heat arrangement of water, glycerin, propylene glycol, and nicotine, which is breathed in by the user when the arrangement becomes aerosolized. Tobacco hazardously affects different organs of the body and is a significant danger factor for carcinoma. The lesions in oral cavity ranges from aphthous ulcers to premalignant lesions and even oral cancer.

Cigarette smoking in pregnancy unfavorably affects maternal and fetal well-being. Smoking in pregnancy builds

the danger of contracting COVID-19 from smoke type of tobacco. This being the most common method of admission includes contact of fingers with lips, which expands the chance of transmission of infection from hand to mouth. Regardless of the fact that cases of COVID-19 pneumonia in pregnancy are milder and involve extraordinary recovery, in various kinds of COVID infection (severe acute respiratory syndrome [SARS], Middle East respiratory syndrome [MERS]), the threats to the mother appear to increase explicitly during the last trimester of pregnancy⁵

Smoking extends the risk of ectopic pregnancy, preterm conveyance, preterm rupture of membrane, and placenta previa.⁶ Fetal and neonatal effects of smoking in pregnancy are defects and low-birth weight.^{7,8} Emerging verification recommends that in utero openness to smoking has unfavorable outcomes like impeded neurological development. These continue showing from youth till late adolescence, with a higher recurrence of sudden infant death syndrome, attention deficit hyperactivity disorder, and vulnerable academic execution in school and future smoking in adulthood⁹

Oral health of females during pregnancy observes numerous alterations because of hormonal changes, thereby increasing the risk of periodontitis. Tobacco smoking during pregnancy upgrades the risk of periodontitis, which can provoke preterm low-birth weight clearly through periodontal diseases. This impact due to smoking has been attributed to blood dispersal

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of periodontal microbes and the effects of cytokine like tumor necrosis factor (TNF)-alpha and interleukin (IL)-1 created during periodontal disease.¹⁰ Another potential of the periodontium in the location of SARS-CoV-2 in the gingival crevicular fluid has come to light that might be useful in the management of the pregnant females as well as the population in general.¹¹ GCF testing has moreover been used to be reliably deterministic of the serum invulnerable response and could furthermore be extrapolated to portray cytokine levels that show up in COVID-19 cases. A future line of assessment could follow the “cytokine storm” profile of COVID-19, as it reflects in the GCF, and how it relates in patients with the presence or nonattendance of gum disease. The presence of SARS-CoV-2 in GCF is a gigantic finding that goes far in understanding the COVID-19 infection, and how it relates to oral health and the act of dentistry.

The impacts of tobacco on mother and the fetus can be understood by various mechanisms. According to fetal start of adult infections, the rapidly duplicating tissues are weaker to fetal programming due to the epigenetic rule. Changed deoxyribonucleic acid (DNA) methylation is proposed to cause epigenetic changes responsible for ominous effects of nicotine.¹² Impact of intrauterine development is predominantly because of carbon monoxide contained in tobacco, which has higher affinity for fetal hemoglobin and impedes oxygen supply to the embryo.

The etiology of missing teeth, that is, disturbance of tooth development (i.e., tooth agenesis or aggravation of tooth emission), particularly of permanent teeth, stays obscure. The etiology of tooth agenesis incorporates hereditary components, ecological elements, or a mix. Tooth development depends upon a series of inductive events, including genes coding for development factors, like those of the FGF, BMP, Wnt, and Hedgehog families, which control epithelial-mesenchymal interactions, and whose functions can be managed by environmental factors like antibiotics, anticancer medications, infections during pregnancy (like rubella), and maternal smoking during pregnancy.⁷ Among numerous possible environmental risk factors for disrupted tooth development, maternal smoking during pregnancy warrants investigation, because past studies have revealed an association between smoking during pregnancy and cleft lip and palate.⁸

Management

Benefits of quitting smoking start as early as 12 hours when CO level in blood drops to normal. Within 2 to 12 weeks, circulation improves and lung function increases. After 1 to 9 months, coughing and shortness of breath decreases.¹³ Proven intervention for quitting tobacco use should be used like toll-free quit lines, mobile text, and nicotine replacement products (NRT) such as nicotine patch, gum, lozenges, nasal spray for those unable to quit and face high risk in continuing to smoke. E-cigarette has not been proven safe for smoking in pregnancy. The coronavirus epidemic has increased the risk of perinatal anxiety and depression as well as domestic violence. It is critically important that support for women and families is

strengthened as far as possible; that women are asked about mental health at every contact. Bupropion (antidepressant) has also been used to manage the concerned issue. With concern to vertical transmission (from mother to baby), evidence now suggests that vertical transmission is probable, although the proportion of pregnancies affected and the significance to the neonate has yet to be determined. At present, there are no recorded cases of vaginal secretions and breast milk being tested positive for COVID-19.

Conclusion

Preconception counselling should be done to make couple aware of dangerous effects of smoking to mother and her offspring. Benefits of quitting smoking in pregnancy are greatest in the first trimester, as organogenesis is taking place. According to WHO, five As (ask, advice, assess, assist, and arrange) should be followed on each visit to quit smoking. While celebrating the world no tobacco day on May 31, the world needs to strive and achieve no tobacco every day.

Conflict of Interest

None declared.

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