

Pharmacological interventions for tobacco cessation during pregnancy: An Umbrella systematic review

Carlos Fernando Grillo-Ardila ¹, Deicy Biviana Martínez-Moncayo ², Catalina Hamon-Pinilla ²

INTRODUCTION

Smoking is the leading preventable cause of preterm birth and low birth weight during pregnancy, tobacco cessation at any time during the course of pregnancy is associated with decrease of adverse perinatal results (1). Recommendations about pharmacological and non-pharmacological management for tobacco cessation are heterogeneous and multiple pharmacological options are available, therefore it is important to synthesize the available evidence regarding the safety and effectiveness of pharmacological interventions to support tobacco cessation during pregnancy and the postpartum period

METHOD

An electronic search was conducted in the PubMed, Embase, CENTRAL, and PROSPERO databases. The search was expanded to include lecture summaries (RCOG, FIGO, ACOG, and FECOLSOG). There were no language or publication date restrictions. The primary endpoint was the number of women with tobacco cessation during pregnancy or the postpartum period, and the frequency of adverse events. The secondary endpoints were the incidence of congenital abnormalities, low birthweight, preterm birth, and neonatal death. Two authors selected the articles and extracted the data into a form designed for that end. The GRADE methodology was used for grading the quality of the evidence. Disagreements were solved by consensus.

Claire R

Taylor

Turner

AUTHOR	RESULT	PARTICIPANTS	OR (CI 95%)	GRADE
Claire R	Tobacco cessation during pregnancy	2336	1.37 [1.08, 1.74]	⊕⊕⊕⊖ Low
	Tobacco cessation during 6 months postpartum	625	1.22 [0.84,1,78]	⊕⊕⊕⊖ Low
	Tobacco cessation during 12 months postpartum	1296	1.35 [0.97,1.88]	⊕⊕⊕⊖ Low
	Miscarriage	1916	1.60 [0.53,4.83]	⊕⊕⊕⊖ Low
	Stillbirth	1777	1.24 [0.54,2.84]	⊕⊕⊕⊖ Low
	Low birth weight	2171	0.69 [0.39,1.20]	⊕⊕⊕⊖ Low
	Preterm labor	2182	0.81 [0.59,1.11]	⊕⊕⊕⊖ Low
	Neonatal death	1746	0.66 [0.17,2.62]	⊕⊕⊕⊖ Low
	Congenital anomalies	1401	0.73 [0.36,1.48]	⊕⊕⊕⊖ Low
	Tobacco cessation	76	0.74 [0.21,2.64]	⊕⊕⊕⊖ Low
Taylor	Stillbirth	275997	1.14 [0.63,2.04]	⊕⊕⊕⊖ Very Low
	Preterm labor	60603	1.25 [1.07,1.46]	⊕⊕⊕⊖ Low
	Congenital anomalies	238683	1.17 [0.97,1.42]	⊕⊕⊕⊖ Low
Turner	Congenital anomalies	3376	0.01[0.00,0.03]	⊕⊕⊕⊖ Very Low

RESULTS

The search yielded 2011 references, of which five reviews met the quality criteria and were included. Low-quality evidence suggested that nicotine replacement therapy (NRT) may increase the frequency of cessation during pregnancy (OR 1.37 95% CI 1.08-1.74), without this being reflected in a higher frequency of cessation during the postpartum period (OR 1.22 95% CI 0.84-1.78). NRT may increase the frequency of preterm birth (OR 1.25 95% CI 1.07- 1.46). Very low-quality evidence suggests that bupropion or varenicline administration may perhaps not increase the frequency of cessation (OR 0.74 95% CI 0.21-2.64) or of adverse prenatal outcomes (OR 1.17 95% CI 0.97-1.42). There were no studies about electronic cigarettes for smoking cessation during pregnancy.

CONCLUSIONS

Low-quality evidence suggests that NRT may perhaps increase the frequency of cessation during gestation but not during the postpartum period. NRT may perhaps increase the incidence of preterm birth. The quality of the evidence regarding the safety and effectiveness of bupropion, varenicline, and electronic cigarettes remains very low and scarce. Additional studies of better quality to analyze the safety and effectiveness of these interventions in this population are required.

REFERENCES

1. Soneji S, Beltrán-Sánchez H. Association of Maternal Cigarette Smoking and Smoking Cessation With Preterm Birth. JAMA network open. 2019;2:e192514.

¹ Assistant professor, Departamento de Ginecología y Obstetricia, Universidad Nacional de Colombia; Grupo de Investigación Clínica y Epidemiológica del Cáncer, Instituto Nacional de Cancerología, Bogotá , Colombia

² Universidad Nacional de Colombia. Facultad de Medicina, Departamento de Obstetricia y Ginecología, Bogotá, Colombia