

Title of Research The Effect of Combinatorial Oral Contraceptives on Smoking-Related Symptomatology

This research will be presented as a poster

Presenter Katie Hinderaker, 2nd Year Medical Student, University of Minnesota prested by Alicia Allen, Ph.D.

Other Authors/Investigators Nicole Tosun, M.S., Alicia Allen, Ph.D., Sharon Allen, M.D./Ph.D.

Abstract

Objective or Hypothesis : The purpose of this study was to determine craving and withdrawal symptomatology by menstrual phase during acute smoking abstinence in women on a combination birth control pill (BCP; Tri-Sprintec) with steady hormonal levels compared to women not on birth control pills (no-BCP) with fluctuating cyclic hormonal levels. We hypothesized that the BCP women would experience different levels of symptomatology (including craving, withdrawal, smoking urges, and depression) than the no-BCP women and that the BCP women would experience less menstrual cycle variation in symptomatology than the no-BCP women.

Population : Women (n=42) aged 18-40 who smoked >5 cigarettes/day and experienced regular menstrual cycles were enrolled in a larger controlled cross-over study. Participants in this study were 27.1+6.3 years old and smoked an average of 10.4 cigarettes/day. The BCP group was significantly younger than the no-BCP group (23.4+4.7 vs. 29.0+6.2, p=0.005, respectively); therefore subsequent analyses controlled for age. Groups were matched on depressive symptoms, menstrual phase, race, and time to first morning cigarette.

Methods Participants quit smoking for two four-day periods: once during Week 1 (e.g. Follicular (F) phase/1st week of Tri-Sprintec) and Week 3 (e.g. Luteal (L) phase/3rd week of Tri-Sprintec). Participants completed daily questionnaires (the Minnesota Nicotine Withdrawal Scale (MNWS), the Questionnaire of Smoking Urges-Brief (QSU), and the Center for Epidemiologic Studies Depression Scale (CES-D)) to assess symptomatology. Participants then returned to ad libitum smoking for approximately 6 weeks before completing identical procedures in the alternate menstrual phase/week of BCP. Phase variation was calculated by subtracting Follicular scores from Luteal scores (L-F). Analyses included logistic regression and growth curve models using SAS 9.2.

Main Results On quit day, BCP women reported greater withdrawal symptomatology in Week 1 while no-BCP women reported greater symptomatology during Week 3 (-2.00+6.54 vs. 1.77+5.76, p=0.03). On the third day of abstinence, BCP women reported more depressive symptoms in Week 1 while no-BCP women reported more depressive symptoms in Week 3 (-1.45+5.22 vs. 3.56+9.90, p=0.05). On the fourth day of abstinence, BCP women scored higher on QSU Factor 2 (Relief of Negative Affect) during Week 3 whereas no-BCP women scored higher in Week 1 (2.67+4.72 vs. -1.61+5.76, p=0.05). No other significant differences were found.

Conclusions These results suggest that ovarian hormones affect smoking-related symptomatology in both naturally cycling women and women on BCPs. Additional work is needed to examine how this may affect smoking cessation efforts.

IRB Approval **HIPAA Compliance**

Funding Sources NIH/NIDA R01-DA008075, NIH/NIDA/OWHR P50-DA033942, NIH/NCRR M01, RR00400, NIH/NCRR 1UL1RR033183, NIH/NCATS 8UL1TR00011, and University of Minnesota Foundation.