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EFFECT OF EXPOSURE TO SECOND-HAND SMOKE FROM HUSBANDS ON SEX HORMONES, METABOLIC PROFILES, CLINICAL PHENOTYPES AND PREGNANCY OUTCOMES IN WOMEN WITH POLYCYSTIC OVARY SYNDROME UNDERGOING OVULATION INDUCTION

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Smoking in women impairs fecundity at some stages of reproductive process including folliculogenesis, embryo transport, endometrial angiogenesis, and uterine blood flow. Yet little is known about the hazards of second-hand smoke (SHS) exposure in women with PCOS. This is a secondary analysis of the Polycystic Ovary Syndrome Acupuncture and Clomiphene Trial (PCOSAct), a large randomized controlled trial conducted at 27 hospitals from 2012 to 2015 in mainland China. Out of 1,000 women with PCOS, SHS exposure status were available in 500 women, of whom 271 women were non-exposed, and 229 exposed to cigarette smoke (170≤10 cigarettes per day as low-SHS exposed and 59>10 cigarettes per day as high-SHS exposed). We compared circulating sex steroids, glucose and lipid metabolism, metabolic syndrome and phenotypes, fertility and obstetric outcomes between non-exposed and exposed women. Women exposed to SHS, compared to non-exposed women, had a higher serum total testosterone (1.7 vs 1.5 nmol/L, P=0.01), free androgen index (5.7 vs 4.0, P=0.001) and lower sex hormone binding globulin (30.1 vs 35.6 nmol/L, P=0.03). Metabolic syndrome, but not other phenotypes, was more frequent in exposed women as compared to non-exposed women (21.8% vs 13.3%, adjusted OR=1.66; 95% CI, 1.02–2.71, P=0.04). Ovulation rates between exposed and non-exposed groups were not significantly different (76.9% vs 82.9%, adjusted OR=0.72; 95% CI, 0.45–1.15, P=0.17). Conception rates were significantly

lower in exposed group (26.6% vs 36.9%; adjusted OR=0.61; 95% CI, 0.41–0.91; P=0.01), while clinical pregnancy and live birth rates showed a similar trend that was not significantly different. Gestational age, birth weight and other obstetric outcomes were not affected by SHS exposure. In conclusion, SHS exposure is associated with worsened biochemical hyperandrogenism, higher incidence of metabolic syndrome and reduced conception rates in women with PCOS. These data suggest that smoking partners of infertile women with PCOS who seek treatment should be advised to quit smoking.

Biography

Ronald Wang is currently Professor at the Department of Obstetrics & Gynaecology, Deputy Director, Prenatal Genetics Diagnosis Centre; Laboratory-in-charge, Department of Obstetrics & Gynaecology; Professor (by courtesy), School of Biomedical Sciences; and Principal Investigator, Li Ka Shing Institute of Health Sciences, The Chinese University of Hong Kong. His major research interests are in clinical and basic research in reproductive medicine, and he has been recently involved in a RCT on PCOS. With a wide range of experience in clinical diagnosis, medical research and teaching, he was appointed to the Editorial Boards and Review Panels of many important research funding agents and journals. He has worked on many research projects, received a total of 60 million research grants and owns two patents. He has published over 150 ISI articles in many acclaimed journals.

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