



**EUROPEAN  
RESPIRATORY SOCIETY**

**ANNUAL CONGRESS 2009**

VIENNA, AUSTRIA, SEPTEMBER 12-16

Media Contact:  
**Dr. Anka Stegmeier-Petroianu**  
pressofficer@ersnet.org

**Embargoed For Release**  
**at**  
**16:00 CET**  
**September 15th**

### **Bronchial Asthma:**

#### **Lung function varies with menstruation cycle**

**VIENNA** - Some women may experience worsening of their asthma just before their menstrual period, suggests a Swiss study presented at the *19<sup>th</sup> Annual Congress of the European Respiratory Society*.

“A significant perimenstrual increase in bronchial responsiveness points to a biological mechanism independent of the disease status,” explains *Julia Dratva*, MD, MPH, Institute of Social Preventive Medicine at the Swiss Tropical Institute, Basel, Switzerland.

Menstrual cyclicity of bronchial hyper-reactivity may be of importance for future screening and diagnostic testing recommendations. In women with this menstrual cyclicity, an adaptation of medication prescriptions might prove useful.

The influence of puberty on asthma incidence in females and reports of change in severity of asthma symptoms in pregnancy and during the luteal phase of the menstrual cycle support the hypothesis of a hormonal influence on lung function in women. Although, peri- or premenstrual asthma (PMA) was first described by Frank et al. in 1931, evidence remains limited. Studies investigating objective parameters, such as lung function parameters (FEV1, PEF), bronchial hyper-reactivity (BHR) or emergency room visits have been largely inconsistent, and the role of exogenous sex hormones for asthma symptoms is still inconclusive. Data on prevalence of PMA also vary greatly, from 6% to 40%.

Press Release

The authors studied the effect of the day in the menstrual cycle on bronchial hyper-reactivity in a population-based cohort of the Swiss Cohort Study on Air Pollution and Lung Disease in Adults (SAPALDIA). They used a new instrument - the menstruation card - to assess the menstrual cycle day prospectively and to investigate potential effect modification associated with asthma status and age.

The study sample consisted of 574 menstruating women age 28-58 from the SAPALDIA cohort of 2001-02, who were not taking exogenous hormones (oral contraceptives or menopausal hormone treatment) and who had reported their first day of menstruation after the SAPALDIA examination. The day of the menstrual cycle corresponding to the day of the bronchial exam was calculated from these data. A window of risk was defined as three days before and after the first day of menstruation. Bronchial hyper-reactivity (BHA) was tested by methacholine challenge test. Hyper-reactivity was defined as a fall of  $\geq 20\%$  in FEV1 up to a maximal cumulative dose of 2 mg. First, the association between BHR and menstrual cycle day was estimated by logistic and linear regression. Analyses were performed adjusting for main predictors of bronchial hyper-reactivity, and effect modification by asthma status and age were tested. The prevalence of BHR was 13%. Six percent of the 547 women tested were asthmatics, and 143 women had undergone methacholine challenge within the risk window. A twofold increased risk of BHR was observed shortly prior to and after the first day of menstruation (OR 2.2, 95% CI 1.16-4.07). A cyclic association pattern was confirmed by trigonometric functions. The observed effect was larger in asthmatics than in non-asthmatics.

The ERS is an organization of and for physicians, health professionals, and scientists that advances lung health through programs of education, research, advocacy and practice support that foster excellence in the field of respiratory medicine. For more information, see [www.ersnet.org](http://www.ersnet.org).

Abstract No: 1735

Title: Cyclic variation of bronchial hyper-reactivity in premenopausal women results from the Swiss air pollution and lung disease in adults cohort II (SAPALDIA)

Author contact: [julia.dratva@unibas.ch](mailto:julia.dratva@unibas.ch)