

THE POSITIVE EFFECT OF LOW-DOSE CONTRACEPTIVE ON THE COURSE OF CYSTIC FIBROSIS IN THE ADOLESCENT FEMALE



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BACKGROUND

Cystic fibrosis (CF) is a complex, multi-system, autosomal recessive disease predominantly affecting Caucasians, that leads to vigorous airway inflammation and chronic respiratory infection. Female sex predisposes to the progression and worsening of lung function, which increases the incidence of acute exacerbations, and leads to the earlier bacterial colonization of *Pseudomonas aeruginosa*.¹ The negative effect of estrogens on the clinical course of CF in girls begins to manifest with the onset of puberty. On the cellular level estrogens affect: 1.) immune and anti-inflammatory processes (reduced lactoferrin production, decreased response of IL-8), 2.) microbial spectrum - the early colonization of *Ps. aeruginosa* and its faster conversion to the mucous strain and 3.) mucociliary clearance - estrogens lead to dehydration of the mucus layer by increasing the sodium channels expression and by reducing the activity of the calcium-activated chloride channels.² During the phase of the menstrual cycle with the highest concentration of estrogens, the mucociliary transport is impaired, and thus airway cleansing, which predisposes to acute exacerbation of the pulmonary infection. Adult women with CF receiving hormonal contraceptives have shown significantly lower estradiol concentrations associated with reduced incidence of acute exacerbations and decreased consumption of antibiotics.³

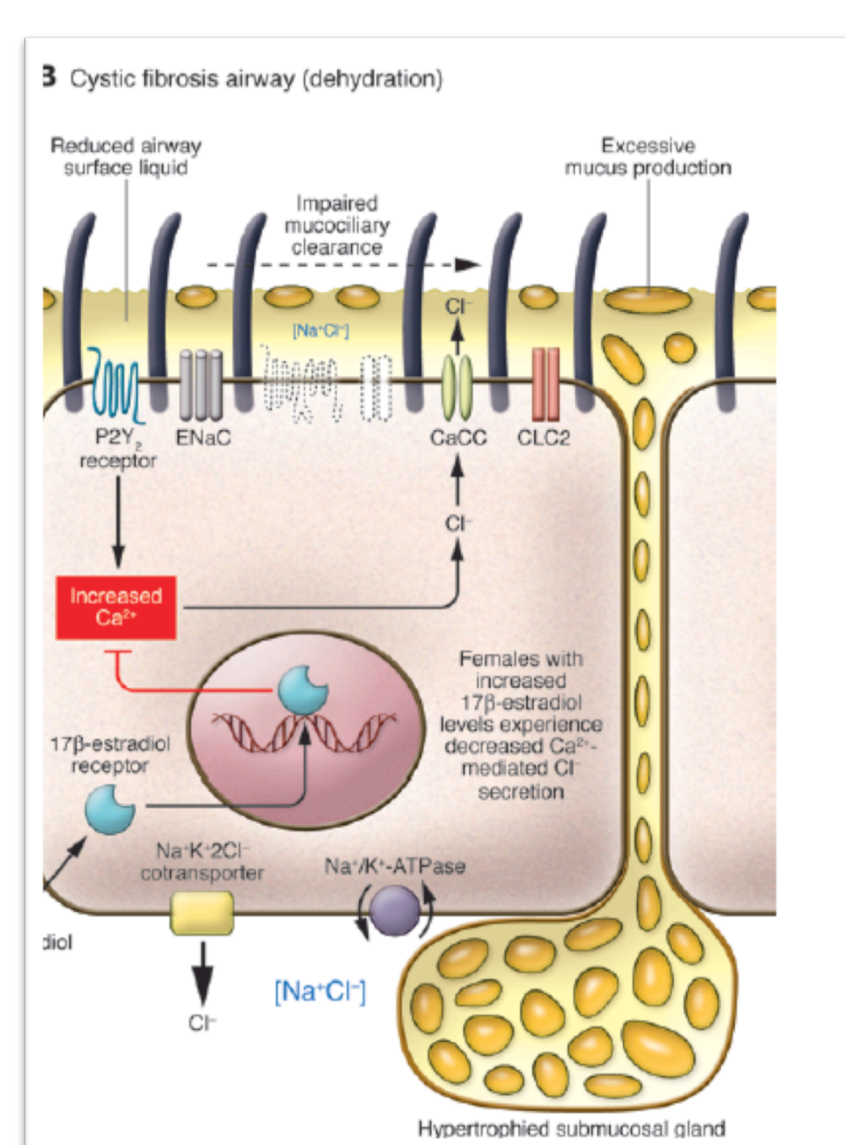


Fig.1. Cystic Fibrosis airway (dehydration).²

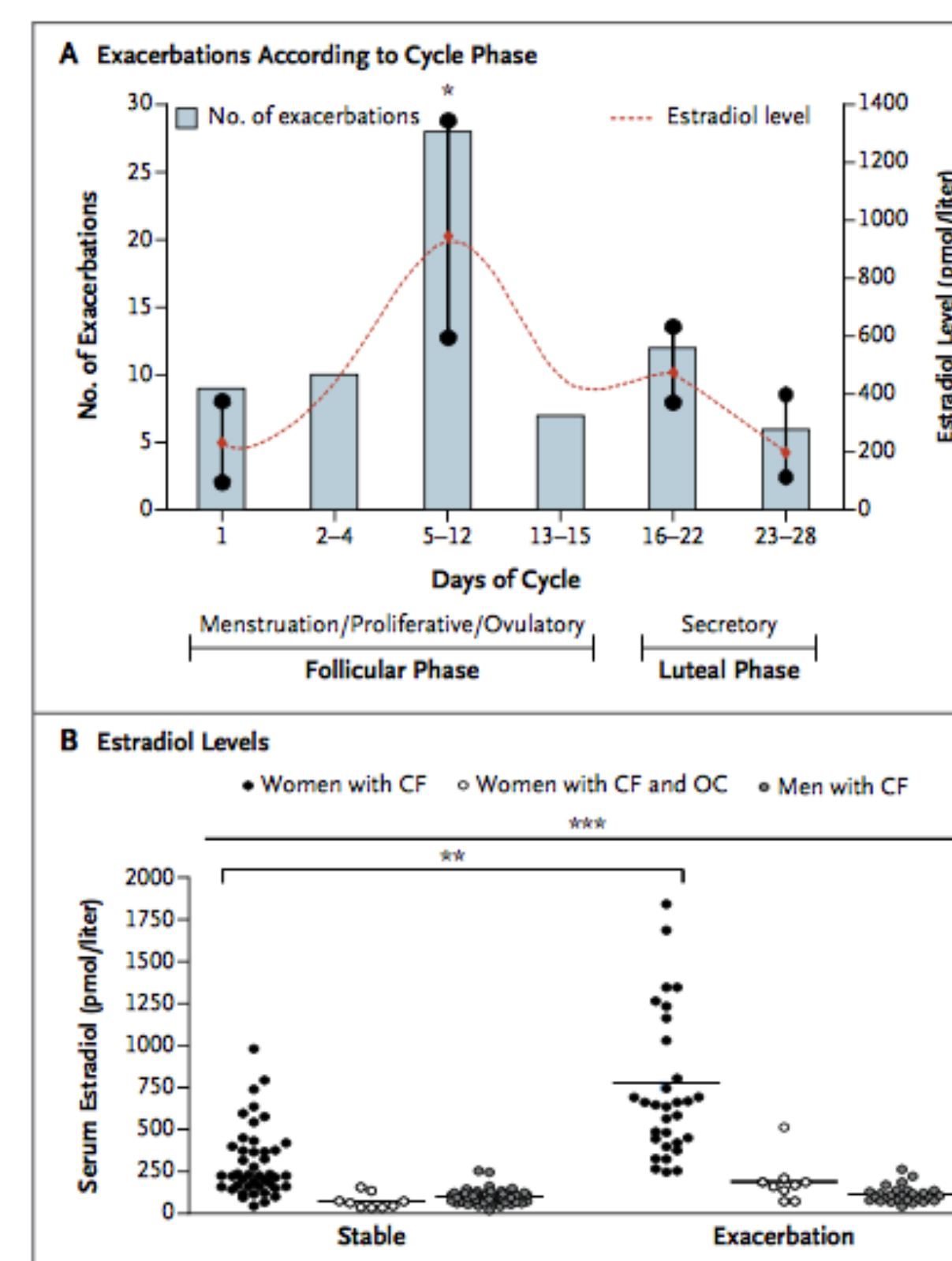


Fig. 2. Exacerbations and Estrogen level in women with Cystic Fibrosis.³

CASE REPORT

15 - years old girl was diagnosed with cystic fibrosis in neonatal period due to meconium ileus (homozygote delta F508). First 15 years of life with a relatively favorable course of the disease, anthropological parameters on the 25th Percentiles (height and weight), without need of hospitalization proper respiratory tract infection. With the onset of menarche, on age 15 years of life there have been repeated acute exacerbations of pulmonary infection with altered clinical status (high fever, severe cough, oxygen therapy and aggressive parenteral antibiotic therapy). Sputum culture showed positivity of *Ps. Aeruginosa*, *Candida Albicans* and *Staphylococcus Aureus*. Antibiotic therapy was managed strictly according to the sensitivity. After the fifth bronchopneumonia, we decided to start (with written parental consent) continuous low-dose hormonal contraceptive therapy (0,020mg ethinylestradiol), which significantly reduced the incidence of exacerbations of pulmonary infection. We have not experienced any undesirable effects during continuous hormonal contraception.

CONCLUSION

The use of hormonal contraceptives in the light of the latest findings has been shown to be a promising way to influence the incidence of exacerbations of lung infections caused by *Pseudomonas aeruginosa* and to improve the prognosis of young female patients with CF.

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