
The relationship between yeast colonization, symptoms and antifungal self-medication remains poorly understood. Previous studies have involved pregnant women or women using hormonal contraception, and many have been underpowered.

This American cohort study aimed to determine the prevalence of yeast colonisation over a 1-year period in 18–30-year-old, sexually active, non-pregnant women. A total of 1248 women were recruited and more than 80% of the scheduled visits at baseline, 4, 8 and 12 months were attended. At each visit a questionnaire was used to enquire about symptoms, antifungal use, sexual/personal behaviour and contraception in the preceding 4 months. A swab of vaginal fluid was transferred to candida-selective culture media.

Some 70% of women were colonised by vaginal yeast at one or more visits, but only 4% were colonised at all four visits. Factors associated with yeast colonisation included marital status (OR 3.5 for currently married compared with single), history of thrush in the last 5 years (OR 1.8), current use of oral contraceptive pill, and current concomitant use of lactobacilli and group B streptococci. Symptoms of pruritus and vulvovaginal burning were associated with yeast colonisation but antifungal use was not.

The results support the concept that Candida albicans exists as part of the normal vaginal flora in many healthy asymptomatic women, and that host factors influence the development of symptoms. The authors suggest that the lack of an association with antifungal use casts doubt on the reliability of self-diagnosis and self-treatment of thrush symptoms. However, the study was limited by possible recall bias and the fact that most women were not examined at the time they had symptoms or used antifungal treatment. Moreover, the study population was relatively young (80% under 25 years) and from similar socioeconomic backgrounds, so may not be representative of the wider female population.

The finding of an association between DMPA use and vaginal yeast colonisation conflicts with previous studies showing a protective effect against yeast colonisation. Furthermore, the finding is therefore reassuring of an association between yeast colonisation and injectable progesterone-only contraceptives.

Reviewed by Louise Melvin, MRCPG, DFFP Clinical Research Fellow, Simpson Centre for Reproductive Health, Royal Infirmary of Edinburgh, Edinburgh, UK


It has been assumed until recently that hormone replacement therapy (HRT) improves urinary symptoms, an assumption based largely on biological, observational and anecdotal evidence. This paper reports more findings from the Women’s Health Initiative Study, which has already caused a sea change in HRT prescribing.

A total of 27 347 postmenopausal women (aged from 40 US centres and randomised to placebo or HRT (either 0.625 mg conjugated equine oestrone (CEE) and 2.5 mg medroxyprogesterone acetate (MPA) or 0.625 mg CEE alone). Urinary incontinence and quality of life measures were assessed by questionnaire. Contrary to expectations, large numbers of women who were continent at baseline were more likely to develop any regimen ready for clinical use. They also commented on some of the problems with studies performed in this field to date. Many of the trials are still underpowered, resulting in fragmented data. There are large numbers of different regimens under investigation making direct comparisons difficult. The paper describes an approach for large-scale trials with sufficient participants to be able to confidently assess efficacy. These are currently ongoing; there is a Phase III study in progress in China and a large-scale commercial study underway in Europe.

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Ovarian function with the contraceptive vaginal ring or an oral contraceptive: a randomized study. Duikers DJ, Klippen C, Verhoeven CH, Dieben TO. Hum Reprod 2004; 19: 2668–2673

There is no doubt about the attractiveness of combined hormonal contraceptives administered in such a way as to avoid hepatic first-pass metabolism and variable efficacy in the presence of plasma and food disturbances. The Organon in The Netherlands focuses on the NuvaRing® contraceptive vaginal ring. This ring releases 15 µg ethinylestradiol and 1.20 µg etonogestrel per day and is inserted for 3 weeks followed by a 1 week ring-free period. Previously it has been demonstrated that this regimen suppresses ovarian function and inhibits ovulation with a predictable cyclical bleeding pattern. The purpose of this study was to compare the effect on ovarian function of the vaginal contraceptive ring with a standard oral contraceptive pill (Mircyclon® 30 µg ethinylestradiol and 150 µg levonorgestrel) in healthy volunteers. Women, shown to ovulate in a screening cycle, were randomised to two monitored cycles with the vaginal ring (n = 21) or contraceptive pill (n = 19). Ovarian function was measured by transvaginal ultrasonography and hormone measurement every 3 days during the study cycles. The study was powered to detect a difference in the ratio of the maximum follicular diameter measured of 1.32. In both cycles ovulation did not occur in any treatment group. However, in the first cycle of treatment there was less follicular suppression in the vaginal ring group (mean follicular diameter 11.8 mm in ring and 8.9 mm in pill groups; ratio 1.32 (1.06–1.62)). This was not seen in the second cycle (11.4 mm and 11.4 mm, respectively 1.11 (0.91–1.36)). The authors suggest that this difference is because the ring is started on Day 5 of the first cycle whereas the pill is started on Day 1. Indeed the endometrial thickness seemed higher in the first cycle of the ring treatment but not in the second. Obviously this was not an efficacy study and the authors claim similar ovarian suppression for the pill and vaginal ring in the second month of the study. However, they also measured serum oestradiol, luteinising hormone and follicle-stimulating hormone concentrations in each cycle. The study was not powered to analyse these and statistical analysis was not done. However, in both cycles it appeared that concentrations of all these hormones tended to be higher for the vaginal ring than for the pill treatment. Although ovulation may not occur, it is still not entirely clear that the biochemical suppression of ovarian function is the same with the vaginal ring as oral contraceptive pill.

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Vaginal yeast colonization in non-pregnant women: a longitudinal study

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