

Measurement of vaginal pH is useful, effective and inexpensive for screening purposes. In the present study, table (2) shows highly significant relationship ($P < 0.001$) between vaginal pH and *B.V*. The pH value in 93.75% of infertile women who had *B.V* was greater than 4.5. This result is in agreement with other studies who depend on Amsel clinical criteria which have considered vaginal pH ≥ 4.5 as one of four criteria to confirm the diagnosis of *B.V* (27, 36-38). The failure of any of the following three endocrine glands hypothalamus, pituitary and ovary lead to inhibition of estrogens production by ovary in women within reproductive age (8, 9, 11). On the other hand, estrogen deficiency in menopausal women lead to elevated vaginal pH, this is due to lack of glycogen content and disappearance of *Lactobacilli* (39). Therefore, the two states are comparable. As well as, anaerobic bacteria that are associated with *B.V* produce organic amine, which raise vaginal pH (17, 33, 40). Our data suggest that the elevated vaginal pH in infertile women who had *B.V* could be due to estrogen deficiency and presence of amines, which are produced by anaerobic bacteria that are responsible for further increase in vaginal pH in those women.

Only 16.2% of healthy control group had vaginal pH ≥ 4.5 this may be due to either recent sexual intercourse or douching or touching cervical mucus (41, 42).

This study found no significant correlation between vaginal pH and candidial infection when compared to the control group, because 75% of infertile women with candidiasis and 83.8% of healthy control group had vaginal pH less than 4.5. Thus, the results of this study are in good

accordance with many studies demonstrating candidial infection occur in normal pH range from 3.5 to 4.5 (11, 43-45).

Many recent studies emphasized that some infertile women with polycystic ovary, and other causes of hyperandrogenemia have elevated or normal level of estrogens (9,13,14,46). It was reported that estrogen increases cellular glycogen content which favors growth of *Lactobacilli* that metabolize glycogen to lactic acid producing an acid pH of 3.5-4.5 (12,16-19).

The result of our study suggests that the normal vaginal pH in some infertile women infected with candidiasis may be due to elevated estrogen level and heavy colonization of vagina by *Lactobacilli*.

The relation between E₂ level and occurrence candidiasis and bacterial vaginosis among infertile women

The relation between serum estrogen (E₂) level and occurrence of candidiasis and bacterial vaginosis among infertile women are shown in table (3). The results of this study demonstrated that the E₂ mean of 48 infertile women who had *B.V* was 41.17 Pg/mL near to lower limit of normal range of E₂ level at follicular phase. From the above result, one can conclude two things, these women were more likely to have hypoestrogenic problems, these problems may be caused by hypothalamic or pituitary or ovarian disorders which are the most common causes of infertility (8-11). The other thing is *B.V* occurred at low estrogen level, the reason of this state is explained by many recent studies who reported estrogen depletion caused by castration, aging or other causes that lead to interruption of estrogen production, produces mucosal atrophy, reduction in cellular glycogen which decreases number of *Lactobacilli*