

COMPARISON OF AMPHOTERICIN B AND NYSTATIN PESSARIES IN *CANDIDA* INFECTION OF THE VAGINA*

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Nystatin is a well-established topical fungicidal agent in the treatment of vaginitis due to *Candida albicans* (Pace and Schantz, 1956; Chesney, 1956; Rohatiner, 1966). Amphotericin B is effective in a number of systemic fungal infections and can also be used locally, yet few studies have appeared on its value in *Candida* vaginitis (Jennison, 1958; Stough and Blank, 1958) and none has been designed to compare the two preparations with each other.

The present report compares the two drugs in *Candida* infection of the vagina in pregnant and non-pregnant women.

Material and Methods

Sixty patients with vulvovaginitis due to *Candida albicans* who attended the Special Clinics of the Central Middlesex Hospital, London, and Shrodell's Hospital, Watford, were studied. Women who had recently been treated with antibiotics or corticosteroids were excluded as were patients who had diabetes. Diagnosis was based on clinical symptoms of irritating vulvovaginitis and the presence of *Candida albicans* in Gram-stained smears and cultures of the vaginal secretions. In some cases the germ tube test of Mackenzie (1962) was included to aid the identification of colonies.

Alternate patients were given either nystatin pessaries (two pessaries inserted nightly for 15 days) or amphotericin B pessaries (one pessary inserted nightly for 15 days). It was planned to examine the patients clinically and bacteriologically 2 weeks after the end of treatment and again 4 to 6 weeks later. The criterion of cure was the absence of *Candida* in two consecutive smears and cultures spread over a period of 6 to 8 weeks after treatment and the absence of vulvovaginitis. The two groups of patients were comparable as regards age; those receiving nystatin had a mean age of 28.3 years (range 17 to 45) and those on amphotericin B a mean age of 25.8 years (range 16 to 44). Eleven of the patients receiving nystatin and twelve of those given amphotericin B were pregnant.

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Results

Four of the sixty patients defaulted and are not further considered. The results of treatment are shown in Table I. Patients who did not respond clinically and bacteriologically to the initial course were usually re-treated with the alternative preparation (Table II). If treatment and re-treatment results are combined, there were seven (25 per cent.) failures in 28 patients given amphotericin B and two (6 per cent.) failures in 35 patients receiving nystatin. One patient failed to respond to both preparations. The results suggest that nystatin is more effective than amphotericin B in the doses given, the difference reaching statistical significance ($P=0.05$) when treated as well as re-treated cases are considered together.

TABLE I
COMPARISON OF NYSTATIN AND
AMPHOTERICIN B IN *CANDIDA* VAGINITIS

Drug	No. Treated	Defaulted	Results		
			Cured		Failed
			No.	Per cent.	
Amphotericin B	28	1	21	78	6
Nystatin	32	3	27	93	2
Total	60	4	48		8

TABLE II
RESULTS OF RE-TREATMENT OF EIGHT FAILURES

Original Treatment	No. of Patients	Results of Re-treatment with	
		Nystatin	Amphotericin B
Amphotericin B	6	6 cured	0
Nystatin	2	1 cured	1 failed

Jennison (1958) found that pregnancy greatly reduced the efficacy of amphotericin B but this was not our experience (Table III, opposite). None of the women who failed to respond to treatment were taking contraceptive pills.

TABLE III
RESULTS OF TREATMENT ACCORDING TO
WHETHER THE PATIENT WAS PREGNANT

Pregnant	No. of Patients	Amphotericin B		Nystatin	
		Cured	Failed	Cured	Failed
Yes	23	10	2(+1)*	9	2
No	33	11	4	18	0
Total	56	21	6(+1)*	27	2

* 1 re-treatment.

Male consorts of four patients with persistent or recurrent *Candida* vaginitis were examined and one was found to have *Candida* balanitis, but the possibility of re-infection from this source was denied.

Discussion

The two dosage schemes were based on the average mean inhibitory concentration of nystatin and amphotericin B against *Candida albicans* and so adjusted as to give similar fungicidal activity (Jennison and Stenton, 1957; Ewing, 1967).

The results of the trial indicate that amphotericin B has no obvious advantages over nystatin in the treatment of vaginal candidosis, and as amphotericin B is a potentially life-saving drug in systemic fungal diseases it should not be used in the routine management of trivial infections, even though natural resistance to this drug appears to be remarkably rare (Lampen, 1966). Cross-resistance of *Candida albicans* with nystatin and amphotericin B has not yet been demonstrated in the laboratory (Hebeka and Solotorovsky, 1965), and for this reason amphotericin B might be considered in patients who repeatedly fail to respond to nystatin even when re-infection or factors favouring persistence of infection have been excluded.

Summary

A comparative trial of nystatin and amphotericin B pessaries in 56 patients with *Candida* vaginitis given in equivalent doses based on *in vitro* sensitivity studies showed that nystatin is somewhat more effective. Pregnancy did not appear to diminish the efficacy of amphotericin B as has been previously reported.

Nystatin is preferred in the routine treatment of *Candida* vaginitis partly because of its greater

efficiency and partly to reserve the use of amphotericin B for serious systemic fungal infections. In patients who fail to respond to nystatin when factors known to cause persistence of infection or relapse are absent or have been removed, amphotericin B pessaries are worth a trial.

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La comparaison entre les pessaires à l'amphotéricine B et ceux au nystatin dans les infections du vagin par le *Candida albicans*

RÉSUMÉ

Un essai comparatif du traitement de 56 patientes atteintes de vaginite causée par le *Candida albicans* par des pessaires contenant l'amphotéricine B et ceux contenant de la Nystatin donnés en doses équivalentes basées par des études de sensibilité *in vitro* a démontré que la nystatin est légèrement plus efficace. La grossesse n'avait pas semblé diminuer l'efficacité de l'amphotéricine B comme il avait été ainsi rapporté.

La nystatin est préférée pour le traitement courant de la vaginite causée par le *Candida albicans* en partie à cause de sa plus grande efficacité et aussi afin de réserver l'usage de l'amphotéricine B pour les infections systémiques marquées causées par les fungi. Chez les patientes qui ne répondent pas à la nystatin quand les facteurs connus causant la persistance de l'infection ou d'une rechute sont absents ou ont été éliminés, les pessaires à l'amphotéricine méritent un essai.