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<th>Role of denture pellicles in Candida albicans biofilm development in vitro</th>
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<td><strong>Author(s)</strong></td>
<td>Nikawa, H; Nishimura, H; Yamamoto, T; Hamada, T; Samaranayake, LP</td>
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Effect of Some Antihypertensive Drugs on Adherence of Candida albicans.

S. K. CHANGHAKKONG, W. SUJJEER, R. SURATI and E. THAWHEEBON
(Faculty of Dentistry, Chiang Mai University, Thailand).

The aim of this study was to compare the effect of 4 antihypertensive drugs: mononacizol, furosemide, ketocazole and clotrimazole on adherence of Candida albicans to human buccal epithelial cells (BEC). In vitro, epithelial cells were collected from the buccal mucosa of healthy dental students. A new method was employed to assess drug adherence. Cells were incubated with drugs at minimum inhibitory concentrations on an adhered (50 mm) at 37 °C for 1 h. After this period, washes were performed three times, and drug concentrations in supernatants were determined. Significant adherence was classified as greater than 50%. All drugs increased adherence of C. albicans to BEC. Ketocazole and clotrimazole significantly increased adherence. (P < 0.01) adherence of C. albicans to BEC (by more than 50%). Overall, adherence of BEC to drugs of different classes was greater than that of drugs. No significant differences were found between different drug classes. However, with the addition of drugs to the mixture of BEC and C. albicans, some differences in drug adherences were observed, possibly due to a time requirement in the interaction of drug to cell. In conclusion, antihypertensive drugs decrease the adherence of C. albicans to buccal epithelial cells with the effectiveness of methylcholazol, furosemide, ketocazole and clotrimazole being similar.

(Faculty of Dentistry, University of Hong Kong).

There is little data on the long term activity of Candida albicans biofilm on mucosal surfaces on the oral cavity. The present study was performed on initial and subsequent stages of C. albicans biofilm formation on denture acrylic that was investigated by the haemocytes of ATP (adenosine triphosphate) analysis through observing a staining protein, ultrasonic protein and SEM (scanning electron microscopy). A biofilm adhered to the acrylic and was stained with ATP. A biofilm on acrylic was assayed by microcalorimetry and real-time PCR. ATP content of the biofilm was measured by ADP and ATP concentrations. When the biofilm formation on acrylic-stained acrylic sections was examined, the yeast intrinsically colored this film at a slower rate than the controls. In addition, a low abundance of RNA was observed. These differences were observed between initial and subsequent biofilm formation (p < 0.05). No significant differences were observed in adherence of C. albicans to acrylic surfaces. These results suggest that denture acrylic may be a strong inhibitor of C. albicans biofilm formation.

373 Antiagglutination activity of lactoferrin and lysozyme against Candida species. Y.-H. Samaranayake, P.C. Wu and L. P. Samaranayake (Department of Pathology and Oral Biology, University of Hong Kong).

Lactoferrin and lysozyme are non-immune defence factors present in polymorphonuclear leukocytes and various mucosal secretions including saliva. Previous studies have shown that both proteins either singly, or in combination are bactericidal in nature and their combined activity is synergistic. Few workers, however, have studied these interactions with Candida and therefore we evaluated the susceptibility of 20 isolates of C. krusei and 5 isolates of C. albicans to both lactoferrin and lysozyme; the combined activity of the two proteins was assessed against one isolate from each species. Results show that the combined activity of lactoferrin and lysozyme is bactericidal towards both C. krusei and C. albicans. The bactericidal activity of lactoferrin and lysozyme was also assessed against 24 isolates of C. albicans of different sources, including saliva, and in all cases the viable yeast cells were assessed by culturing 50 μl of suspension on Sabouraud agar; incubating at 37°C and quantifying the resultant growth (CFU). The two Candida species exhibited significant interspecies differences in their susceptibility to lactoferrin and lysozyme, but not for lactoferrin and lysozyme alone. No synergistic antiagglutination activity of the two proteins on other Candida species was noted. These results imply that both lactoferrin and lysozyme may act variably on Candida species and modulate the oral carriage of yeast in a very complex manner.

375 Clinical comparison between a manual and an electronic periodontal probe. S. Pichers, D. Nergis, U. Plazter (University of Hamburg, Faculty of Dentistry, Department of Operative Dentistry and Periodontology, Hamburg, Germany).

Pocket depth is an important clinical aspect in the diagnosis of periodontitis. The degree of accuracy of the measurement is of utmost importance. Furthermore, it is an important criterion for the agreement of different photographs. Electronic periodontal probes are proposed to give more constant and reproducible values because there is no influence of the examiner. In the present in vivo study the results of a manual (F-Bridge) and electronic (E-Pen, Probe-2) probing shall be compared.

30 adults with periodontitis took part in the study. The measurements were carried out on six sites of each tooth manually and then with the electronic probe. The same procedure was done twice after a week. The data were obtained and evaluated. The differences between the teeth of the patients and similar pocket depth values were evaluated using the program EXCEL 6.0. The mean pocket depth gained by manual measurement was 2.9 mm ± 1.2 mm with a reproducibility of 0.1 mm. The measurements with the electronic probe were 2.4 mm ± 1.3 mm and the reproducibility 0.1 mm. They varied for the incisors: 2.4 mm ± 1.0 mm and for the molars 3.5 mm ± 1.5 mm measuring manually. Electronically the incisors showed mean values of 1.9 mm ± 1.1 mm and the molars 2.8 mm ± 1.6 mm. The differences between manual and electronic measurements were statistically significant. However, the results obtained using electronic probes were generally in 0.5 mm lower. The differences turned out to be the same regarding deeper pockets. Concluding, the results of the study indicate that both probes can be considered in clinical evaluation, but the electronic probe has no diagnostic advantage.

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A breakdown of the microbial homeostasis in the oral cavity may lead to the proliferation and overgrowth of C. albicans, which is one of the first steps towards the development of oral candidiasis. The purpose of this study was to establish and identify a mixed community of oral bacteria that will control the growth of C. albicans in the chemostat and that can be used to investigate cause-and-effect relationships. The overall aim of this study was to elucidate the effect of pH on the growth and survival of C. albicans in a chemostat, and the influence of salivary immunoglobulins on the growth of C. albicans in a chemostat. The chemostat was inoculated with saliva and 50% C. albicans was added. After 15 days, the yeast counts fell to 10^6 CFU/ml. This mixed community of oral bacteria can be used in chemostats as a basis for further studies to determine the parameters of oral significance that influence the relationships between the oral bacteria and C. albicans.

This study was supported by the M.R.C.