

原著

フクシン染色による *Staphylococcus epidermidis* の産生する粘着物質 (Slime) 量の測定

美祢弘子 二宮健司

川崎医療福祉大学大学院 医療技術学研究科 臨床栄養学専攻

1998-05-20 00:00:00+09 受理

Fuchsin-Staining Measurement of Sticky Substance (Slime) Produced by *Staphylococcus epidermidis*

Hiroko MINE and Kenji NINOMIYA

Master's Program in Clinical Nutrition Graduate School of Medical Professions Kurashiki, 701-0193, Japan

(Accepted 1998-05-20 00:00:00+09)

Key words: *Staphylococcus epidermidis*, slime, biofilm, antibiotics

Abstract

Quantitative measurement of slime produced by *S. epidermidis* was investigated in this paper. Isolated strains of *S. epidermidis* were suspended in a CASEIN medium in plastic conical tubes (SUMILON: polystyrene) and were cultured at 35°C for 24 hours. After staining the slime adhered on the tube wall with a fuchsin solution, the stained solution was eluted into boiled phosphate buffer saline (PBS). Absorbance of the eluted solution at OD 547nm was considered to be a measure of the amount of slime. The amount of slime produced by 48 strains of *S. epidermidis* (26 strains from young people in their twenties and 22 strains from old people in their fifties), some biochemical characteristics and susceptibilities to antibiotics were studied and their relationship was analyzed statistically. It was shown that the 22 strains from old people produced more slime than the 26 strains from young people. However the difference was not significant ($p < 0.05$). Thirty mannose-utilizing strains produced significantly higher amounts of slime than 18 mannose non-utilizing strains ($p < 0.05$). Among 5 antibiotics tested (PCG, ABPC, SM, CP and FOM), 37 strains resistant to SM produced significantly more slime than 11 sensitive strains.

要約

Staphylococcus epidermidis の産生する slime の定量的測定法を検討した。CASEIN 培地に浮遊した菌液をプラスチック製遠沈管(SUMILON; polystyrene 製)に加えて35°Cで24時間培養した。遠沈管に付着した slime をフクシン液で染色した後、加熱 phosphate buffer saline(PBS)を加えて付着色素を溶かした。今回の実験では溶出液の OD 547nm 値を測定して相対的な slime 量とした。48菌株の S. epidermidis(20代の宿主由来26株, 50代の宿主由来22株)の slime 産生量を定量的に測定するとともにこれらの生化学的性状と抗生物質に対する感受性を調べ、両者の相関関係を統計的に検討した。50代の宿主由来の22菌株の slime 産生量は20代の宿主由来のものよりも高い傾向がみられたがこの差は統計的には有意ではなかった。分離菌株の示す生化学的性状と slime 産生量の相関関係を調べた結果 mannose 分解30株の slime 産生量が非分解18株のものよりも統計的に有意に高かった($p < 0.05$)。5種類の抗生物質(PCG, ABPC, SM, CP, FOM)に対する感受性と slime 産生量の相関関係を調べた結果, SM 耐性37株における slime 産生量が感受性11株におけるものよりも統計的に有意に高かった。
