

ABSTRAK

PERBEDAAN EKSPRESI GEN COLLAGEN 4 ALPHA-1 (COL4A1) PADA LOW GRADE DAN HIGH GRADE ORAL SQUAMOUS CELL CARCINOMA

**(Studi pada Pasien di Laboratorium Patologi Anatomi
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Oral Squamous Cell Carcinoma (OSCC) merupakan kanker epitel rongga mulut yang bersifat progresif, dengan pengelompokan diferensiasi *Low Grade* dan *High Grade*. gen COL4A1 banyak ditemukan pada progresi kanker dan dianggap terlibat pada proses invasi dan metastasis. Namun, belum diketahui secara jelas bagaimana perubahan ekspresi gen COL4A1 pada kejadian OSCC berdasarkan pengelompokan diferensiasi sel epitel (*low* dan *high grade*). Penelitian ini bertujuan untuk mengetahui perbedaan ekspresi gen COL4A1 pada *Low Grade* dan *High Grade* OSCC. Penelitian ini berjenis observasional analitik dengan rancangan *cross sectional* menggunakan 18 sampel FFPE OSCC. Metode penelitian dilakukan dengan isolasi RNA, sintesis cDNA, dan kuantifikasi ekspresi gen COL4A1 menggunakan qPCR. Analisis data menggunakan *GenEx MultiD 6 Software* dengan uji T independen untuk mengetahui tingkat perbedaan ekspresi. Rerata nilai $\Delta\Delta C_T$ kelompok *Low Grade* sebesar $1,24546 \pm 1,0908$ dan *High Grade* sebesar $3,81033 \pm 1,56744$. Analisis ekspresi gen COL4A1 menunjukkan terdapat peningkatan ekspresi gen COL4A1 pasien *High Grade* sebesar 5,19072 ($p < 0,05$). Simpulan penelitian ini adalah ekspresi gen COL4A1 pada OSCC lebih tinggi pada *high Grade* dibandingkan *low Grade*.

Kata kunci: Gen COL4A1, OSCC, *Low Grade*, *High Grade*

ABSTRACT

DIFFERENT COLLAGEN 4 ALPHA-1 (COL4A1) GENE EXPRESSION IN LOW GRADE AND HIGH GRADE ORAL SQUAMOUS CELL CARCINOMA

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Oral Squamous Cell Carcinoma (OSCC) is progressive cancer originating from oral epithelial tissue whose grouping based on epithelial differentiation is Low Grade and High Grade. Collagen 4 Alpha-1 (COL4A1) gen is predominantly found during OSCC progression and is considered involved in invasion and metastasis. However, COL4A1 gen expression change in OSCC based on epithelial differentiation grouping (low and high grade). This study aimed to perceive the difference in COL4A1 gene expression between Low Grade and High-Grade OSCC. The current study is an analytic observational type with a cross-sectional design using 18 FFPE samples of OSCC. Study methods include RNA isolation, cDNA synthesis, followed by qPCR to evaluate COL4A1 gene expression. Data analysis was performed in GenEx MultiD 6 Software using an independent T-test to achieve different expression levels. The mean value of $\Delta\Delta CT$ in the Low-Grade group was 1.24546 ± 1.0908 , while in the High-Grade group was 3.81033 ± 1.56744 . Expression analysis showed COL4A1 gene rose 5,19072 ($p < 0,05$) times in the high-grade than in the low-grade patients. Therefore, we conclude a significant increase in COL4A1 gen expression in High Grade than Low-Grade OSCC.

Key words: COL4A1 Gene, OSCC, Low Grade, High Grade