

FREKUENSI EKSPRESI PROTEIN *HYPOXIA-INDUCIBLE FACTOR-1 α*
PADA KARSINOMA SEL SKUAMOUSA LARING

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Serta Hubungannya dengan Berbagai Faktor
Klinikopatologis

INTISARI

Latar belakang: Salah satu kanker yang memiliki insidensi dan mortalitas yang tinggi di Asia tenggara dan Eropa selatan adalah Karsinoma sel skuamosa kepala dan leher. Kejadian kanker kedua, setelah kanker kulit, pada kanker kepala dan leher yang paling sering terjadi adalah kanker laring. Lebih dari 95% keganasan laring adalah jenis Karsinoma sel skuamosa. Daerah hipoksia adalah konsekuensi dari ekspansi tumor solid yang cepat. Hipoksia terjadi ketika jaringan tidak mendapatkan vaskularisasi lokal yang cukup untuk mendistribusikan nutrisi dan oksigenasi. Hipoksia juga akan menginduksi ekspresi *hypoxia-inducible factor-1 α* (HIF-1 α). Protein ini merupakan aktivator transkripsi yang berperan penting terhadap angiogenesis, proliferasi sel, metabolisme glukosa/ besi, dan migrasi.

Tujuan: Penelitian ini bertujuan untuk menentukan frekuensi ekspresi protein *Hypoxia-inducible factor-1 α* pada Karsinoma Sel Skuamosa Laring serta hubungannya dengan berbagai faktor klinikopatologis (jenis kelamin, usia, lokasi tumor, dan derajat histopatologis).

Metode: Penelitian ini merupakan jenis penelitian *descriptive analytic cross sectional study*. Pemeriksaan ekspresi protein dilakukan dengan menggunakan pulasan imunohistokimia pada jaringan hasil biopsi (blok parafin) yang terregistrasi dari tahun 2012-2013. *Consecutive sampling* digunakan pada penelitian ini. *Fisher exact test* digunakan untuk menganalisis hubungan frekuensi HIF-1 α dengan jenis kelamin, usia, dan lokasi tumor. Selanjutnya, *Chi square test* digunakan untuk menganalisis hubungan frekuensi HIF-1 α dengan derajat histopatologis.

Hasil: Frekuensi ekspresi protein HIF-1 α positif pada penelitian ini adalah 60% dan negatif 40%. Tidak terdapat hubungan yang bermakna antara frekuensi ekspresi protein HIF-1 α positif dengan jenis kelamin ($p=0,150$), usia ($p=1,000$), lokasi tumor ($p=0,150$), dan derajat histopatologis ($p=0,079$).

Kesimpulan: Frekuensi ekspresi protein HIF-1 α positif pada penelitian ini adalah 60% dari total 25 sampel. Tidak terdapat hubungan yang bermakna ($p>0,05$) antara frekuensi ekspresi protein HIF-1 α positif dengan berbagai faktor klinikopatologis (jenis kelamin, usia, lokasi tumor, dan derajat histopatologis).

Kata Kunci: Ekspresi, *hypoxia-inducible factor-1 α* , karsinoma sel skuamosa laring, hubungan, faktor klinikopatologis, imunohistokimia.

**THE FREQUENCY OF HYPOXIA-INDUCIBLE FACTOR-1 α PROTEIN
EXPRESSION ON LARYNGEAL SQUAMOUS CELL CARCINOMA AT RSUP
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And Its Correlation with Various Clinicopathology
Factors

ABSTRACT

Background: One of the cancer that has high incidence and mortality in South East Asia and South Europe are Head and neck cancer. The second most happened, after skin cancer, of head and neck cancer is laryngeal cancer. More than 95% laryngeal malignant type is squamous cell carcinoma. Hypoxia region is a consequence of solid tumor fast expansion. Hypoxia occurs when the tissue does not get enough local vascularization for nutrition and oxygenation. Hypoxia will trigger tumor tissue also to express hypoxia-inducible factor-1 α (HIF-1 α). This protein is transcription activator that play important role in angiogenesis, cell proliferation, glucose/ iron metabolism, and migration.

Purpose: This research was conducted to determine the frequency of expression of hypoxia-inducible factor-1 α protein in laryngeal squamous cell carcinoma and its correlation with various clinicopathology factors (sex, age, tumor location, and histopatological grade).

Metode: This was a type of descriptive analytics cross sectional study. Protein expression examination was conducted by using immunohistochemical staining on tissue biopsy results (paraffin blocks). This examination was conducted on sample of tissue biopsy which were registered from 2012-2013. Consecutive sampling were applied in this study. Fisher exact test was used to analysed the correlation between frequency of expression of hypoxia-inducible factor-1 α protein and sex, age, and tumor location. Furthermore, chi square test was used to analysed the correlation between frequency of expression of hypoxia-inducible factor-1 α protein and histopatological grade.

Result: The frequency of positive HIF-1 α protein expression was 60% and negative was 40%. There were no significant correlation between frequency of expression of positive HIF-1 α protein with sex ($p=0,150$), age ($p=1,000$), tumor location ($p=0,150$), and histopatological grade ($p=0,079$).

Conclusion: The frequency of positive hypoxia-inducible factor-1 α protein expression in this research was 60% from the 25 sample. There were no significant correlation ($p>0,05$) between frequency of positive HIF-1 α protein expression with various clinicopathology factors (sex, age, tumor location, and histopatological grade).

Key word: Expression, *hypoxia-inducible factor-1 α* , laryngeal squamous cell carcinoma, correlation, clinicopathology factors, immunohistochemical.