

# Delesi 30 pb gen laten membran protein-1 (LMP1) virus Epstein-Barr (EBV) pada penderita karsinoma nasofaring (KNF) di Indonesia = The 30-bp Deletion of Epstein-Barr Virus (EBV) latent membrane protein-1 (LMP1) gene in Indonesia Nasopharyngeal Carcinoma (NPC) patient

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## Abstrak

Latar Belakang: Virus Epstein-Barr (EBV) merupakan virus dsDNA dan termasuk dalam famili Herpesviridae. Infeksi EBV dapat berasosiasi dengan beberapa penyakit seperti karsinoma nasofaring (KNF). Pada penderita KNF, gen EBV yang diekspresikan adalah gen lain, yaitu EBERS, EBNA1, LMP1, LMPZA, dan LMPZB. Dari kesemua gen tersebut, LMP1 dianggap yang berperan penting dalam proses onkogenesis dan transformasi limfosit B oleh EBV. Dan beberapa Studi epidemiologi, ditemukan adanya varian khusus pada gen LMP1 berupa delesi 30 pb pada bagian C-terminal. Di Indonesia, hingga saat ini belum diketahui apakah ditemukan delesi 30 pb gen LMP1 pada penderita KNF dan bila ditemukan, apakah delesi tersebut berhubungan dengan patogenesis KNF.

Tujuan: Mengetahui apakah ditemukan delesi 30 pb gen LMP1 EBV pada penderita KNF di Indonesia, dan bila ditemukan berapa frekuensi delesi 30 pb gen LMP1 EBV pada penderita KNF di Indonesia, Serta mengetahui hubungan antara delesi tersebut dengan status patologi KNF.

Metode: Identifikasi delesi 30 pb gen LMP1 Virus Epstein-Barr dilakukan dengan metode nested PCR dan hasil PCR divisualisasi dengan elektroforesis menggunakan gel agarose 2%. Hasil amplifikasi berupa pita DNA berukuran 162 pb untuk gen LMP1 yang tidak mengalami delesi 30 pb, sedangkan pita DNA berukuran 132 pb untuk gen LMP1 yang mengalami delesi 30 pb.

Hasil: Dari 100 sampel penderita KNF yang diidentifikasi, 29 sampel mengalami delesi 30 pb, 71 sampel tidak mengalami delesi 30 pb, dan 21 sampel mengalami coexistence varian.

Kesimpulan: Di Jakarta, varian EBV berupa delesi 30 pb gen LMP1 ditemukan dalam frekuensi yang rendah (24%; 29/121) bila dibandingkan varian yang tidak mengalami delesi 30 pb (76%; 92/121). Pada penelitian ini juga ditemukan adanya coexistence Varian gen LMP1 Berdasarkan uji Fisher's Exact, didapat bahwa nilai  $p > 0,05$ , berarti tidak ada hubungan bermakna antara delesi 30 pb gen LMP1 dengan status patologi KNF.

**Background:** Epstein-Barr virus (EBV) is a dsDNA virus, member of Herpes (Herpesviridae) family. EBV infection may be associated with several diseases, one of them is nasopharyngeal carcinoma (NPC). NPC patients expressed EBV latent gene, they are EBERS, EBNA1, LMP1, LMPZA, and LMPZB. LMP1, in particular play important roles in epithelial oncogenesis and B lymphocyte transformation. Several epidemiological studies found specific variant of LMP1 gene detectable as 30-bp deletion of C-terminal region of LMP1 gene. There is not any report of 30-bp LMP1 gene on NPC patients so far and it is still unclear whether the deletion is associated with NPC pathogenesis.

**Purpose:** (1) To understand the existence of the deletion of 30-bp LMP1 gene in Indonesia NPC patients. (2) To determine the frequency of 30-bp deletion of LMP1 gene and its association with pathological status.

**Method:** Identification of 30-bp deletion in LMP1 gene was done by nested PCR method. The PCR result was investigated by means of electrophoresis in 2% agarose gel. The results were determined as 162 bp of

DNA band of LMPI gene (without 30-bp deletion) and 132 bp of DNA band of LMP1 gene (with 30-bp deletion).

Results: Among 100 identified samples, 29 samples found to have 30-bp deletion, 71 samples doesn't have 30-bp deletion and 21 samples carry coexistence variants.

Conclusion: In Indonesia, especially in Jakarta, EBV variant of 30-bp deletion of LMP1 gene was found in low frequency (24.7%; 29/ 121) in comparison with variant without deletion (76%; 92/121). There are variant of LMPI gene mixtures (coexistence with and without deletion). Analysis of data using Fisher's Exact test ( $p > 0,05$ ) showed that there is not significant relationship between 30-bp deletion of LMPI gene and NPC pathological status.