

## Ekspresi gen litik virus Epstein-Barr: manfaatnya untuk penegakan diagnosis karsinoma nasofaring

<b>Title</b>	Ekspresi gen litik virus Epstein-Barr: manfaatnya untuk penegakan diagnosis karsinoma nasofaring
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<b>Abstract</b>	<p>Background: Nasopharyngeal carcinoma (NPC) is endemic in certain geographic regions, such as Southeast Asia, and is associated with several environmental and genetic factors. Undifferentiated NPC is consistent with Epstein-Barr virus (EBV) infection. NPC is the most common ENT tumor in Indonesia with high prevalence among native populations and yearly overall incidence estimated 6.2 per 100.000 population. Purpose: To explain the advantage of EBV immediate-early gene expression analysis in determining of NPC diagnosis and management of NPC. Review: Replication of EBV implies to two cellular reactions, i.e. latency and lytic cycle expression of EBV lytic genes which consists of three lytic phases, i.e. immediate-early, early and late phase. Expression of immediate-early genes BZLF1 and BRLF1 are needed to induce early and late genes, so both genes are known as transactivator genes. BALF1, an early lytic gene, expresses some protein regulating EBV replication in NPC. Expression of BCLF1, a late lytic gene, is essential for EBV replication, particularly in the forming of virion structure in NPC. Switching from latent to lytic cycle in tumor cells can happen spontaneously, particularly when the viral immediate early genes are induced via signal transduction after initial activation by anti-IgG, TGF-<math>\beta</math> and CD4+. In NPC, the induction of EBV lytic cycle by cisplatin and irradiation gamma leads to the increasing expression of BRLF1 and BZLF1 which have a correlation with the increasing of tumor progression. RT-PCR technique is a very useful for detecting mRNA BRLF1 and BZLF1 gene expression at the site of primary tumor, while real-time RT-PCR technique is used to measure the mRNA level of those genes. Conclusion: Expression of EBV immediate-early lytic gene in the biopsy of NPC primary tumor provides a basic clinical information for NPC diagnosis and therapy more accurately. Key words: expression EBV lytic gene, nasopharyngeal carcinoma, NPC diagnosis. Abstrak: Latar belakang: Karsinoma nasofaring (KNF) bersifat endemik secara geografis (di Asia Tenggara) dan berasosiasi dengan beragam faktor lingkungan dan genetik. KNF tidak berdiferensiasi konsisten dengan adanya infeksi virus Epstein-Barr (VEB). Prevalensi KNF pada populasi Indonesia cukup tinggi sebesar 6,2/100.000 penduduk per tahun. Tujuan: Menjelaskan kegunaan analisis ekspresi gen litik immediate-early VEB untuk menegakkan diagnosis KNF dan meningkatkan efisiensi dalam penanganan KNF. Tinjauan Pustaka: Replikasi VEB pada epitel nasofaring berimplikasi pada dua reaksi seluler, yaitu siklus laten dan litik VEB. Ekspresi gen litik VEB terdiri dari tiga fase, yaitu immediate-early, early dan late. Ekspresi gen immediate-early BZLF1 dan BRLF1 diperlukan untuk menginduksi gen litik fase early dan late, sehingga kedua gen tersebut dikenal sebagai gen transaktivator. Gen fase early litik BALF1 mengekspresikan protein replikasi pada KNF. Ekspresi gen fase late BCLF1 berperan penting untuk replikasi VEB pada KNF, terutama untuk membentuk struktur virion. Perubahan siklus laten menjadi siklus litik pada sel tumor dapat terjadi secara spontan, terutama melalui transduksi sinyal setelah aktivasi oleh anti-IgG, TGF-<math>\beta</math> dan CD4. Pada KNF, induksi siklus litik VEB dengan cisplatin dan radiasi sinar <math>\gamma</math> menyebabkan peningkatan ekspresi gen BRLF1 dan BZLF1 yang berkorelasi dengan peningkatan progresivitas tumor. Teknik RT-PCR akan sangat berguna untuk mendeteksi ekspresi mRNA gen BRLF1 dan BZLF1 VEB pada lokasi tumor primer, sedangkan teknik real time RT-PCR digunakan untuk mengukur kuantitas mRNA gen tersebut. Kesimpulan: Ekspresi gen litik immediate-early VEB pada biopsi tumor KNF memberikan informasi klinis dasar yang lebih akurat untuk diagnosis dan terapi KNF. Kata kunci: ekspresi gen litik VEB, karsinoma nasofaring, diagnosis KNF.</p>
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