

ABSTRAK

ASPEK GENETIKA MOLEKULER PADA KANKER PAYUDARA

Jelly Winner, 2006. PEMBIMBING I: Sylvia Soeng, dr, M. Kes.
PEMBIMBING II: Teresa Liliana W., S. Si.

Kanker payudara termasuk kanker yang sering terjadi pada wanita. Akhir-akhir ini, insidensi kanker payudara cenderung meningkat dengan mortalitas yang tinggi. Pengetahuan mengenai etiologi kanker payudara masih terbatas. Pengetahuan tentang faktor risiko kanker payudara pun hanya mampu menjelaskan sebagian kecil dari kasus kanker payudara yang terjadi. Faktor risiko yang dapat memicu perkembangan kanker payudara antara lain usia, geografis tempat tinggal, riwayat kanker payudara di dalam keluarga, paparan radiasi ionik pada masa kanak-kanak, riwayat tumor jinak payudara, onset *menarche* terlalu dini, menopause terlambat, *nullipara*, usia terlalu tua saat hamil pertama, terapi estrogen, gambaran *high density* pada mammografi, obesitas pada wanita postmenopause, konsumsi alkohol, merokok, level prolaktin tinggi, kanker payudara kontralateral, riwayat operasi ginekologis tumor ovarium, mengalami radiasi dinding dada. Faktor gen terbukti berperan dalam terjadinya kanker payudara. Gen-gen yang telah diidentifikasi berperan dalam terjadinya kanker payudara antara lain gen *p53*, gen *BRCA1*, dan gen *BRCA2*. Berdasarkan penelitian terbaru, diperoleh sejumlah gen lain yang diduga berperan dalam terjadinya kanker payudara, antara lain gen *IGF1*, gen *IGFBP3*, gen *Her2/neu*, gen *SERBP-1c*, gen *GSTM1*, gen *GSTT1*, gen *COP1*, gen-gen aromatase, gen *Bcl-2*, gen *BCRP*, gen *BCOX1*, gen *c-Yes*, gen *ESR1*, gen *ESR2*, gen *KiSS-1*, gen *XRCC1*, gen *XPD*, gen *FANCD2*, gen *BRIP1/BACH1*, gen *LMO4*, gen *SFN*, gen *SULT1A1*, gen *UGT1A1*, gen *CRIPak*, gen *PPP2R1B*, gen *S100*, gen *MMP-1*, gen *MMP-9*, gen *NOD2/CARD15*. Kemajuan pengetahuan di bidang genetika molekuler diharapkan dapat memberikan banyak informasi mengenai peran berbagai gen dalam terjadinya kanker payudara. Pada akhirnya, informasi-informasi tersebut diharapkan dapat membantu menemukan metode diagnosis dini yang lebih baik dan terapi kanker payudara yang lebih efektif.

ABSTRACT

MOLECULAR GENETIC ASPECT of BREAST CANCER

Jelly Winner, 2006. TUTOR I: Sylvia Soeng, dr, M. Kes.
TUTOR II: Teresa Liliana W., S. Si.

Breast cancer is one of the frequent cancers in women. Nowadays, breast cancer incidence mostly increases with a high mortality. The etiology of breast cancer is still poorly understood. Breast cancer risk factors explain only a small proportion of cases. Some of breast cancer risk factors are age, geographical region, family history breast cancer, ionizing radiation exposure in childhood, history of benign breast disease, early age of menarche, late onset of menopause, nulliparity, older age at first birth, hormonal replacement therapy, high mammographic breast density, obesity in postmenopause, alcohol consumption, smoking, high prolactin levels, one side-breast cancer, gynecologic ovariectomy history, breast exposure to radiation. Genes also involved in breast cancer risk. Some of genes which are involved in breast cancer are p53 gene, BRCA1 gene, and BRCA2 gene. A novel research in molecular genetic of breast cancer identified a number of genes which are involved in breast cancer, such as IGF1 gene, IGFBP3 gene, Her2/neu gene, SERBP-1c gene, GSTM1 gene, GSTT1 gene, COP1 gene, aromatase genes, Bcl-2 gene, BCRP gene, BCOX1 gene, c-Yes gene, ESR1 gene, ESR2 gene, KiSS-1 gene, XRCC1 gene, XPD gene, FANCD2 gene, BRIP1/BACH1 gene, LMO4 gene, SFN gene, SULT1A1 gene, UGT1A1 gene, CRIPak gene, PPP2R1B gene, S100 gene, MMP-1 gene, MMP-9 gene, NOD2/CARD15 gene. Advancement of molecular genetic science is expected to be able to give a lot of informations of gene's role in breast cancer. Finally, these informations are expected to be able to help us in finding a better early diagnostic method and a more effective breast cancer therapy.

DAFTAR ISI

	Halaman
LEMBAR PERSETUJUAN.....	ii
SURAT PERNYATAAN.....	iii
ABSTRAK.....	iv
<i>ABSTRACT</i>	v
PRAKATA.....	vi
DAFTAR ISI.....	vii
DAFTAR TABEL.....	x
BAB I PENDAHULUAN.....	1
1.1. Latar Belakang.....	1
1.2. Identifikasi Masalah.....	2
1.3. Maksud dan Tujuan.....	2
1.4. Manfaat Karya Tulis.....	2
1.5. Metodologi Penelitian.....	2
1.6. Lokasi dan Waktu Penelitian.....	3
BAB II TINJAUAN PUSTAKA.....	4
2.1. Siklus Sel.....	4
2.1.1. Fase-Fase dalam Siklus Sel.....	4
2.1.2. Apoptosis.....	6
2.1.3. Proto-onkogen dan Gen Supresor Tumor.....	7
2.2. Definisi Kanker.....	8
2.2.1. Karakteristik Morfologi Sel Kanker.....	9
2.2.2. Kelainan Kromosom pada Kanker.....	10
2.2.3. Kanker Sporadik dan Kanker Hereditas.....	11
2.3. Histologi Payudara.....	11
2.4. Gambaran Kanker Payudara.....	11
2.4.1. Epidemiologi Kanker Payudara.....	12

2.4.2. Etiologi Kanker Payudara.....	12
2.4.3. Faktor Risiko Kanker Payudara.....	12
2.4.4. Morfologi Kanker Payudara.....	14
2.4.5. Klasifikasi Kanker Payudara.....	15
2.4.6. Stadium Kanker Payudara.....	15
2.4.7. Pemeriksaan Penunjang dan Diagnosis Kanker Payudara.....	16
2.4.8. Diagnosis Pasti Kanker Payudara.....	18
2.4.9. Evaluasi Penderita Kanker Payudara.....	18
2.5. Perubahan Genetik pada Kanker Payudara.....	20
2.5.1. Gen <i>IGF1</i> dan Gen <i>IGFBP3</i>	20
2.5.2. Gen <i>Her2/neu</i>	20
2.5.3. Gen <i>SERBP-1c</i>	21
2.5.4. Gen <i>GSTM1</i> dan Gen <i>GSTT1</i>	22
2.5.5. Gen <i>COPI</i>	22
2.5.6. Gen Aromatase.....	23
2.5.7. Gen <i>Bcl-2</i>	23
2.5.8. Gen <i>BCRP</i>	24
2.5.9. Gen <i>BCOX1</i>	25
2.5.10. Gen <i>c-Yes</i>	25
2.5.11. Gen <i>ESR1</i> dan Gen <i>ESR2</i>	26
2.5.12. Gen <i>KiSS-1</i>	27
2.5.13. Gen <i>XRCC1</i> dan Gen <i>XPD</i>	27
2.5.14. Gen <i>FANCD2</i> , Gen <i>BRIP1/BACH1</i> , Gen <i>LMO4</i> , dan Gen <i>SFN</i>	27
2.5.15 Gen <i>SULT1A1</i> dan Gen <i>UGT1A1</i>	27
2.5.16. Gen <i>CRIPak</i>	28
2.5.17. Gen <i>PPP2R1B</i>	29
2.5.18. Gen <i>S100</i>	29
2.5.19. Gen <i>MMP-1</i> dan Gen <i>MMP-9</i>	30
2.5.20. Gen <i>NOD2/CARD15</i>	31

2.6. Terapi Gen pada Kanker Payudara.....	31
BABIII RINGKASAN.....	32
BABIV KESIMPULAN DAN SARAN.....	42
4.1. Kesimpulan.....	42
4.2. Saran.....	42
DAFTAR PUSTAKA.....	44
RIWAYAT HIDUP.....	49

DAFTAR TABEL

	Halaman
Tabel 2.1. Promotor dan Inhibitor Apoptosis.....	7
Tabel 2.2. Perbedaan Morfologi Sel Jinak dan Sel Kanker.....	9
Tabel 2.3. Hubungan Faktor Risiko Kanker payudara dengan Besarnya Peningkatan Risiko Kanker Payudara.....	13
Tabel 2.4. Stadium Kanker Payudara Menurut <i>The American Joint Committee</i>	16