Cyclin D1

2000  12

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</table>

2000□ 12□ □
Figure 1. Age distribution of leukoplakia patients without and with malignant transformation

Figure 2. Sex distribution of leukoplakia patients without and with malignant transformation

Figure 3. Site distribution of leukoplakia patients without and with malignant transformation

Figure 4. Epithelial dysplasia of leukoplakia patients without and with malignant transformation

Figure 5. Cyclin D1 expression of leukoplakia patients without and with malignant transformation

Figure 6. Cyclin D1 expression of leukoplakia patients according to site

Figure 7. Cyclin D1 Expression of leukoplakia patients without and with epithelial dysplasia

Table 1. Leukoplakia without malignant transformation

Table 2. Leukoplakia with malignant transformation

Table 3. Correlation between Cyclin D1 expression and malignant change
シリンダー D1 の結果

1. シリンダー D1 の結果　・20% (5/25)　・80% (8/10)
2. シリンダー D1 の結果　・50% (11/22)　・15% (2/13)
3. シリンダー D1 の結果　・46% (10/22)　・20%

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Cyclin D1

I. Introduction

Pindborg et al. (1977), Burkhard (1985), and Silverman et al. (1984) have described the histological characteristics of the precursor lesions of oral cancer. The WHO Collaborating Centre for Oral Precancerous Lesions (1978) has classified these lesions into three main categories: epimeloblastoma, squamous cell carcinoma in situ, and basal cell carcinoma in situ. The prevalence of these lesions varies from 5% to 43% in different populations. Burkhard (1985) reported a 50% prevalence of oral precancerous lesions in certain populations. Hayward and Regezi (1977) have also described the characteristics of these lesions.

- 1 -

±×·³¿¡µµº´¸®Á¶Á÷ÇÐÀûÀÎÀÌÇü¼ºÁ¤µµ·Î¸¸¾ÏÀ¸·ÎÀÌÇàÇÒ°¡´É¼ºÀ»¿¹ÃøÇϴ°ÍÀº¾î·Á¿òÀ̵û¸¥´Ù (Abbey, 1995; Karabulut, 1995; Pindborg, 1997).

º¯À¸·ÎÀ°¾ÈÀ¸·Î´ÂÇϾé°Ôµ¤ÇôÀÖ´ÂÇ¥¸é¸¸º¸ÀÏ»ÓÁøÇàÀÇÁ¤µµ¸¦±¸ºÐÇÒ¼ö ¾ø±â¶§¹®¿¡ÀÓ»óÀǻ簡ÁøÇàµÈºÎÀ§¸¦»ý°ËÇÏÁö¸øÇÒ¼öµµÀÖÀ¸¸ç (Abbey, 1995; Karabulut, 1995; Pindborg, 1997).

¼Ò°ßÀ̾ƴѻý¹°ÇÐÀûÇ¥ÁöÀÚ¸¦ÀÌ¿ëÇÏ¿©Á¾¾çÀÇÁøÇà¿©ºÎ¸¦¿¹ÃøÇÒ¼öÀÖ´Â µû¶ó¼­Á¶Á÷ ¼Ò°ßÀ̾ƴѻý¹°ÇÐÀûÇ¥ÁöÀÚ¶õ±¸°­¾ÏÀǹ߻ýÀ̹߾ÏÀÎÀÚÀǹݺ¹Àû³ëÃâ·ÎÀÎÇÑÀ¯ÀüÀÚ ¹×Çüź¯È­ÀÇÃàÀûÀ¸·ÎÀϾ´Ù´Â ¹Ü°èÀÌ·Ð À»¹ÙÅÁÀ¸·ÎÇѰÍÀ¸·Î, °¢´Ü°èÀÌ·Ð À»¹ÙÅÁÀ¸·ÎÇѰÍÀ¸·Î (Kim and Shin, 1997: Schwartz, 2000).

»ý¹°ÇÐÀûÇ¥ÁöÀڴ¸Áö·ÎºÐ·ùÇÒ¼öÀִµ¥, À¯ÀüÀÚÁö Ç¥Áõ½Ä´ÉÁöÇ¥, ºÐÈ­µµÁöÇ¥°¡±×°ÍÀ̸ç ±×Áß¿¡¼­Áõ½Ä´ÉÀÇÃøÁ¤Àº±¸°­¾ÏÀÇ (Kim and Shin, 1997: Schwartz, 2000).

¾Ç¼ºº¯È­¸¦¿¹ÃøÇϴ»ý¹°ÇÐÀûÇ¥ÁöÀڴ¸Áö·ÎºÐ·ùÇÒ¼öÀִµ¥, À¯ÀüÀÚÁö Ç¥Áõ½Ä´ÉÁöÇ¥, ºÐÈ­µµÁöÇ¥°¡±×°ÍÀ̸ç ±×Áß¿¡¼­Áõ½Ä´ÉÀÇÃøÁ¤Àº±¸°­¾ÏÀÇ (Kim and Shin, 1997: Schwartz, 2000).

PCNA, Mib-1, Cyclin D1, CENP-F ÀÌÇàÇÒ°¡´É¼ºÀ»¿¹ÃøÇϴ°ÍÀº¾î·Á¿òÀ̵û¸¥´Ù (Kim and Shin, 1997: Schwartz, 2000).

Rb (retinoblastoma) ÀÌÇàÇÒ°¡´É¼ºÀ»¿¹ÃøÇϴ°ÍÀº¾î·Á¿òÀ̵û¸¥´Ù (Kim and Shin, 1997: Schwartz, 2000).

PCNA, Mib-1, Cyclin D1, CENP-F ÀÌÇàÇÒ°¡´É¼ºÀ»¿¹ÃøÇϴ°ÍÀº¾î·Á¿òÀ̵û¸¥´Ù (Kim and Shin, 1997: Schwartz, 2000).

Rb (retinoblastoma) ÀÌÇàÇÒ°¡´É¼ºÀ»¿¹ÃøÇϴ°ÍÀº¾î·Á¿òÀ̵û¸¥´Ù (Kim and Shin, 1997: Schwartz, 2000).

G1/S ÀÌÇàÇÒ°¡´É¼ºÀ»¿¹ÃøÇϴ°ÍÀº¾î·Á¿òÀ̵û¸¥´Ù (Kim and Shin, 1997: Schwartz, 2000).

Rb (retinoblastoma) ÀÌÇàÇÒ°¡´É¼ºÀ»¿¹ÃøÇϴ°ÍÀº¾î·Á¿òÀ̵û¸¥´Ù (Kim and Shin, 1997: Schwartz, 2000).

G1/S ÀÌÇàÇÒ°¡´É¼ºÀ»¿¹ÃøÇϴ°ÍÀº¾î·Á¿òÀ̵û¸¥´Ù (Kim and Shin, 1997: Schwartz, 2000).

Rb (retinoblastoma) ÀÌÇàÇÒ°¡´É¼ºÀ»¿¹ÃøÇϴ°ÍÀº¾î·Á¿òÀ̵û¸¥´Ù (Kim and Shin, 1997: Schwartz, 2000).

G1/S ÀÌÇàÇÒ°¡´É¼ºÀ»¿¹ÃøÇϴ°ÍÀº¾î·Á¿òÀ̵û¸¥´Ù (Kim and Shin, 1997: Schwartz, 2000).
Cyclin D1-CDK4/6 inhibits Rb phosphorylation. Rb phosphorylation is also inhibited by p16(Ink4a) (Weinstein, 1996; Callender, 1994). Inhibition of Rb/cyclin D1/p16 complex formation and activation of Rb (Gillett, 1994; Zhang, 1993). Inhibition of Cyclin D1 results in the formation of the Rb-Cyclin D1 complex (Bellacosa, 1996; Kyomoto, 1997; Michalides, 1995). Cyclin D1 inactivates Rb and activates transcription. When cyclin D1 and Rb are overexpressed, Cyclin D1 inhibits Rb phosphorylation and activates transcription.
II. 二、三、四

1.

2.

3. Cyclin D1

- 4 -
4. 4-methylumbelliferyl esterase 10μM, 3μM, 1μM, 0.5μM, 0.1μM, 5μM, 1μM, 0.5μM, 0.1μM, 5μM, 1μM, and 0.5μM (100% 10μM, 90% 3μM, 70% 3μM). 10 mM EDTA (pH 8.0) was used to quench the reaction at 121°C for 10 minutes. 3.0% hydrogen peroxide/methanol 10%, 2%, 1%, 0.5%, and 0.1% Tris Buffer Saline (TBS, pH=7.6) were used, respectively. The Cyclin D1 (Novocastra, Newcastle, United Kingdom) was diluted in TBS 1:40. 37°C for 2 hours. 1. TBS washes. 2. Biotin-streptavidin (Vector, Burlingame) was added at 30μL/mL. 3. Peroxidase substrate horseradish streptavidin (Vector, Burlingame) was added at 30μL/mL. 4. TBS washes. 5. AEC (3-acetyl-9-ethyl carbazol) substrate kit (Vector, Burlingame) was added at 10%. Mayer’s hematoxylin was added. 200x 400x 100x 50x 20x 50x. 400x 100x 50x 20x 50x 20x 50x. 400x 100x 50x (Labeling Index %).
III. 1. 20\% \text{ (9/10)} \quad 50\% \quad 90\% \quad 5\% \quad 5\% (Fig. 1).

Fig. 1. Age distribution of leukoplakia patients without(s) and with(c) malignant transformation(MT).
Fig. 2. Sex distribution of leukoplakia patients without (s) and with (c) malignant transformation (MT).

2. ¹ß»ýºÎÀ§º°·Î´ÂÀüü¹é¹ÝÁõ

35 ¿¹ÁßÇùÁ¡¸·ÀÌ
12 ¿¹Çô°¡
13 ¿¹Ä¡ÀºÀÌ
7 ¿¹±¸°³ºÎ°¡
2 ¿¹±¸°­Àú°¡
1 ¿¹¿´À¸¸ç
6 ¿¹ÇùÁ¡¸·
2 ¿¹Ä¡Àº
1 ¿¹±¸°­Àú
1 ¿¹¿¡¼­¾Ç¼ºÀüȯÀ»ÀÏÀ¸ÄÑÇô¿¡¼­¾Ç¼ºÀüȯºóµµ°¡³ô¾Ò´Ù (Fig. 3).

3. ÑßÀû°üÂû±â°£

¿ù¿¡¼­ÃÖ´ë 86°³¿ù±îÁöºÐÆ÷ÇÏ¿´´Ù
¿ù¿¡¼­ÃÖ´ë 49°³¿ù±îÁöºÐÆ÷ÇÏ¿´´Ù
¿ù¿¡¼­²°æ¿ì´ÂÃʱâ»ý 9.3°³¿ùÀ̾úÀ¸¸ç
¿ù¿¡¼­²°æ¿ì 41.5°³¿ù·ÎÃÖ¼Ò 24°³¿ù Àå¿ì 10°³¿ùÀ̾ú
¿ù¿¡¼­²°æ¿ì 1°³¿ùÀ̾ú 49°³¿ùÀ̾ú.
Fig. 3. Site distribution of leukoplakia patients without (s) and with (c) malignant transformation (MT).

BM: buccal mucosa, Ton: tongue, Gin: gingiva, Pal: palate, FOM: floor of mouth

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Fig. 4. Epithelial dysplasia of leukoplakia patients without (s) and with (c) malignant transformation (MT).

**Cyclin D1**

Cyclin D1 35 13 (37%) 25 5 (20%) 10 8 (80%) (Fig. 5). (Table 1, 2).

- 9 -
Table 1. Leukoplakia without malignant transformation

<table>
<thead>
<tr>
<th>Case</th>
<th>Age</th>
<th>Sex</th>
<th>Site</th>
<th>Follow up (M)</th>
<th>Dyslasia</th>
<th>CD1 expression</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>53</td>
<td>M</td>
<td>Buccal mucosa</td>
<td>46</td>
<td>mild</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>78</td>
<td>F</td>
<td>Mx. gingiva</td>
<td>27</td>
<td>mild</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>31</td>
<td>F</td>
<td>Mx. gingiva</td>
<td>47</td>
<td>mild</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>65</td>
<td>F</td>
<td>Mn. gingiva</td>
<td>74</td>
<td>mild</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>52</td>
<td>M</td>
<td>Tongue</td>
<td>44</td>
<td>mild</td>
<td>-</td>
</tr>
<tr>
<td>6</td>
<td>70</td>
<td>M</td>
<td>Buccal mucosa</td>
<td>47</td>
<td>mild</td>
<td>-</td>
</tr>
<tr>
<td>7</td>
<td>68</td>
<td>M</td>
<td>Tongue</td>
<td>31</td>
<td>mild</td>
<td>+</td>
</tr>
<tr>
<td>8</td>
<td>67</td>
<td>M</td>
<td>Buccal mucosa</td>
<td>24</td>
<td>mild</td>
<td>-</td>
</tr>
<tr>
<td>9</td>
<td>44</td>
<td>M</td>
<td>Buccal mucosa</td>
<td>39</td>
<td>mild</td>
<td>+</td>
</tr>
<tr>
<td>10</td>
<td>60</td>
<td>M</td>
<td>Buccal mucosa</td>
<td>49</td>
<td>mild</td>
<td>-</td>
</tr>
<tr>
<td>11</td>
<td>40</td>
<td>M</td>
<td>Tongue</td>
<td>38</td>
<td>mild</td>
<td>+</td>
</tr>
<tr>
<td>12</td>
<td>65</td>
<td>M</td>
<td>Tongue</td>
<td>50</td>
<td>mild</td>
<td>-</td>
</tr>
<tr>
<td>13</td>
<td>40</td>
<td>M</td>
<td>Buccal mucosa</td>
<td>86</td>
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<tr>
<td>14</td>
<td>60</td>
<td>M</td>
<td>Tongue</td>
<td>47</td>
<td>no</td>
<td>-</td>
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<tr>
<td>15</td>
<td>75</td>
<td>M</td>
<td>Tongue</td>
<td>26</td>
<td>no</td>
<td>-</td>
</tr>
<tr>
<td>16</td>
<td>48</td>
<td>M</td>
<td>Buccal mucosa</td>
<td>39</td>
<td>no</td>
<td>-</td>
</tr>
<tr>
<td>17</td>
<td>23</td>
<td>M</td>
<td>Mn. gingiva</td>
<td>34</td>
<td>no</td>
<td>-</td>
</tr>
<tr>
<td>18</td>
<td>37</td>
<td>F</td>
<td>Tongue</td>
<td>28</td>
<td>no</td>
<td>+</td>
</tr>
<tr>
<td>19</td>
<td>50</td>
<td>F</td>
<td>Buccal mucosa</td>
<td>30</td>
<td>no</td>
<td>+</td>
</tr>
<tr>
<td>20</td>
<td>60</td>
<td>F</td>
<td>Buccal mucosa</td>
<td>39</td>
<td>no</td>
<td>-</td>
</tr>
<tr>
<td>21</td>
<td>48</td>
<td>F</td>
<td>Buccal mucosa</td>
<td>52</td>
<td>no</td>
<td>-</td>
</tr>
<tr>
<td>22</td>
<td>67</td>
<td>M</td>
<td>Mx. gingiva</td>
<td>35</td>
<td>no</td>
<td>-</td>
</tr>
<tr>
<td>23</td>
<td>30</td>
<td>M</td>
<td>Palate</td>
<td>30</td>
<td>no</td>
<td>-</td>
</tr>
<tr>
<td>24</td>
<td>75</td>
<td>F</td>
<td>Palate</td>
<td>2</td>
<td>no</td>
<td>-</td>
</tr>
<tr>
<td>25</td>
<td>65</td>
<td>M</td>
<td>Mn. gingiva</td>
<td>4</td>
<td>no</td>
<td>-</td>
</tr>
</tbody>
</table>

- 10 -

- Cyclin D1 expression: 62% (8/13), 33% (4/12) (Fig. 6).
- Cyclin D1 expression: 100% (1/1) (Fig. 6).
- Labeling Index (%): 11.6±9.2 (%), 8.0±5.8 %.
8.3±7.0 % (Table 3).

<table>
<thead>
<tr>
<th>Case</th>
<th>Age</th>
<th>Sex</th>
<th>Site</th>
<th>Period (M)</th>
<th>Dysp (LK)</th>
<th>Diff (Ca)</th>
<th>CD1 expression</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>LK Ca</td>
</tr>
<tr>
<td>26</td>
<td>55</td>
<td>M</td>
<td>Tongue</td>
<td>1</td>
<td>mild</td>
<td>mod-well</td>
<td>+ +</td>
</tr>
<tr>
<td>27</td>
<td>62</td>
<td>F</td>
<td>Mn. gingiva</td>
<td>16</td>
<td>mild</td>
<td>mod-well</td>
<td>- -</td>
</tr>
<tr>
<td>28</td>
<td>51</td>
<td>M</td>
<td>Tongue</td>
<td>49</td>
<td>mild</td>
<td>mod-well</td>
<td>+ +</td>
</tr>
<tr>
<td>29</td>
<td>61</td>
<td>M</td>
<td>Tongue</td>
<td>17</td>
<td>mild-mod</td>
<td>micro</td>
<td>+ +</td>
</tr>
<tr>
<td>30</td>
<td>75</td>
<td>F</td>
<td>Tongue</td>
<td>2</td>
<td>mod</td>
<td>micro</td>
<td>- -</td>
</tr>
<tr>
<td>31</td>
<td>64</td>
<td>F</td>
<td>Mouth floor</td>
<td>14</td>
<td>mod</td>
<td>mod-poor</td>
<td>+ +</td>
</tr>
<tr>
<td>32</td>
<td>75</td>
<td>M</td>
<td>Tongue</td>
<td>1</td>
<td>mod-severe</td>
<td>micro</td>
<td>+ +</td>
</tr>
<tr>
<td>33</td>
<td>29</td>
<td>F</td>
<td>Tongue</td>
<td>1</td>
<td>severe</td>
<td>micro</td>
<td>+ +</td>
</tr>
<tr>
<td>34</td>
<td>62</td>
<td>F</td>
<td>Buccal mucosa</td>
<td>12</td>
<td>mod (lichenoid)</td>
<td>mod-well</td>
<td>+ +</td>
</tr>
<tr>
<td>35</td>
<td>51</td>
<td>F</td>
<td>Buccal mucosa</td>
<td>18</td>
<td>mod (lichenoid)</td>
<td>mod-poor</td>
<td>+ +</td>
</tr>
</tbody>
</table>


Fig. 5. CD1 expression of leukoplakia patients without (s) and with (c) malignant transformation (MT).
Fig 6. CD1 expression of leukoplakia patients according to site.
BM: buccal mucosa, Tong: tongue, Gin: gingiva, Pal: palate, FOM: floor of mouth

Fig. 7. CD1 expression of leukoplakia patients without (s) and with (c) epithelial dysplasia (Dysp).
Table 3. Correlation between CD1 expression and malignant change.

<table>
<thead>
<tr>
<th>Histology</th>
<th>No. of case</th>
<th>No. of positive (%)</th>
<th>LI(%, mean)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>6</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Leukoplakia without MT</td>
<td>25</td>
<td>5(20%)</td>
<td>7.6 ± 4.0</td>
</tr>
<tr>
<td>Leukoplakia with MT</td>
<td>10</td>
<td>8(80%)</td>
<td>8.3 ± 7.0</td>
</tr>
<tr>
<td>Total Leukoplakia</td>
<td>35</td>
<td>13(37%)</td>
<td>8.0 ± 5.8</td>
</tr>
<tr>
<td>Cancer</td>
<td>10</td>
<td>8(80%)</td>
<td>11.6 ± 9.2</td>
</tr>
</tbody>
</table>

MT: malignant change, LI: labeling index
IV. CYCLIN D1

Cyclin D1 is a cyclin dependent protein kinase (CDK) that is involved in the regulation of cell cycle progression. It is expressed in a variety of human cancers, including breast, lung, and colon cancer. Additionally, it is a target of several oncogenic viruses such as Epstein-Barr virus (EBV) and human papillomavirus (HPV). Cyclin D1 expression is often correlated with increased cell proliferation and decreased apoptosis.

Cyclin D1 expression is also associated with several other protein kinases such as Rb (retinoblastoma) and other cell cycle regulators. Elevated levels of cyclin D1 have been observed in many types of cancer, indicating its importance in cancer development and progression. The use of specific antibodies against cyclin D1 has allowed for the detection of its expression levels in various cancer types, providing valuable information for diagnostic and therapeutic purposes.

The exact mechanisms by which cyclin D1 deregulation contributes to cancer development remain unclear. However, studies have shown that cyclin D1 may promote oncogenic transformation by stabilizing the Rb tumor suppressor protein, thereby allowing the cell cycle to progress despite DNA damage. Additionally, cyclin D1 has been implicated in the regulation of cell survival and proliferation through its interaction with other cell cycle regulators.

Overall, cyclin D1 is an important target for cancer research, and further studies are needed to fully understand its role in cancer development and progression.
Cyclin D1 "Ü¹é¹ßÇöÁ¤µµ¸¦ºñ±³ÇÏ¿©¹ßÇö°­µµ¿Í¹üÀ§°¡Áõ°¡ÇѴٴº¸°íµµÀÖ´Ù
(Auhlm an µî, 1996).

º»¿¬±¸¿¡¼­´ÂÀÇÄ¡ÀºÁ¶Á÷°ú´ÂÂ÷À̰¡ÀÖÀ»°ÍÀ¸·Î»ý°¢µÈ´Ù
(10) 8 (80%) °¡¾ç¼º¹ÝÀÀÀ»º¸¿´´Ù
(35) 13 (37%) µû¶ó¼­µµÀÌÇü¼ºÀÌÀÖÀ»¶§³ôÀººóµµ·Î¹ßÇöÇÏ¿´´Âµ¥ÀÌ´ÂÀÌÇü¼º
Á¤µµ¿¡ºñ·Êºóµµ¹×¹ßÇöÁ¤µµ°¡Áõ°¡ÇÑ´Ù´ÂÀÌÀüÀǺ¸°í¿ÍÀÏÄ¡ÇÑ´Ù

¶Çº» - 15 -
Cyclin D1 levels were relatively low in the malignant tumors compared to the normal tissue (Barkova et al., 1995), with a mean value of 8.0 ± 5.8 %, whereas the normal tissue had a mean value of 11.6 ± 9.2 %.

Silberman et al. (1984; Banoczy, 1977; Roed-Petersen, 1971) reported the following values:

- 23% of the tumors had 50% or more of the normal level of Cyclin D1.
- 12% of the tumors had 50% or more of the normal level of Cyclin D1.
- 5% of the tumors had 50% or more of the normal level of Cyclin D1.
- 5% of the tumors had 50% or more of the normal level of Cyclin D1.
- 5% of the tumors had 50% or more of the normal level of Cyclin D1.

(Silverman et al., 1984; Banoczy, 1977; Roed-Petersen, 1971).
(Langdon, 1995)。これと同様の症例を詳細に示すと、6/35の症例（46％）で観察され、他にも一部の症例で同様の所見が報告されている。

また、5-43％の症例においても報告されている（Burkhard, 1985; Silverman µî，1984）。22例中10例（45％）で28％の認定され、他の症例では28％の認定される傾向がみられた。

上述の結果により、9.3％の症例においても発症が観察されている。これらの結果は、従来の報告と同様に、臨床的な観察により、認定される傾向があると考えられる。

11％で43％の症例においても、認定される場合がある。この結果は、臨床的な観察により、認定される傾向があると考えられる。

100％の症例においても、45％で認定される傾向がある。これは、臨床的な観察により、認定される傾向があると考えられる。

認定される症例においても、20％の認定される傾向がある。これは、臨床的な観察により、認定される傾向があると考えられる。

Cyclin D1の発現が認められた。この結果は、臨床的な観察により、認定される傾向があると考えられる。

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V. 조사

1. Cyclin D1 조사 비도 20% (5/25)로 35%를 상회하여 20%의 병발 비도를 보였고 10%의 10%를 연관시켰다. Cyclin D1의 병발 비도는 25%로 35%를 상회하였다.

2. Cyclin D1 조사 비도 50% (11/22)로 20%의 병발 비도를 보였고 15% (2/13)의 100%를 연관시켰다. Cyclin D1의 병발 비도는 46% (10/22)로 20%의 병발 비도를 보였다. Cyclin D1의 병발 비도는 100%의 46%를 연관시켰다.


Burkhard A: Advanced methods in the evaluation of premalignant lesions and


Silvestri F, Bussani R, Pavletic N, Mannone T and Bosatra A: From epithelial
dyaplasia to squamous carcinoma of the head and neck region: evolutive and

Sittel C, Ruiz S, Voling P, Kvasnicka HM, Junghuelsing M and Eckel HE:
Prognostic significance of Ki-67(MIBI), PCNA and p53 in cancer of the

Sugar L and Banoczy J: Follow-up studies in oral leukoplakia. Bull. Wld Hlth

nonhistochemical staining for markers of future neoplastic progression in

Weinstein IB: Relevance of cyclin D1 and other molecular markers to cancer

WHO collaborating centre for oral precancerous lesions: Definition of

Zhang YJ, Jiang W, Chen CJ, Lee CS, Kahn SM, Santella RM and Weinstein
IB: Amplification and overexpression of cyclin D1 in human hepatocellular
Fig. 8: a. Normal oral mucosa (H&E). (X 200)
   b. No Cyclin D1 (CD1) immunoreactivity was found. (X 200)

Fig. 9: a. Leukoplakia without epithelial dysplasia (H&E). (X 200)
   b. CD1 expression was shown at the parabasal cell layer. (X 200)

Fig. 10: a. Leukoplakia showing moderate epithelial dysplasia (H&E). (X 200)
   b. Diffuse CD1 expression was shown. (X 200)

Fig. 11: a. Microinvasive squamous cell carcinoma developed from
         leukoplakia (H&E). (X 200)
   b. Diffuse CD1 expression was shown at the basal and parabasal cell
      layer. (X 200)

Fig. 12: a. Well differentiated squamous cell carcinoma developed from
         leukoplakia (H&E). (X 200)
   b. Strong positive reactivity was shown in the peripheral portion of
      tumor cell nests against CD1 antibody. (X 200)
ABSTRACT

Cyclin D1 Expression for Risk Assessment of Malignant Transformation in Oral Precancerous Lesions

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The early detection of precancerous lesions potentially progressing to malignant tumors is critically important to reduce cancer incidence. Epithelial dysplasia has been considered as a reliable histologic hallmark to define premalignant lesions. But the subjectivity of evaluating the degree of epithelial dysplasia and the fact that the degree of epithelial dysplasia may not directly correlate to the rate of malignant transformation, make it more complicated to predict the risk of malignant transformation of precancerous lesions.

This study aimed to evaluate the usefulness of Cyclin D1 expression as a predictable biomarker in oral leukoplakia with and without malignant transformation. This study used 25 cases of oral leukoplakia without malignant transformation and 10 cases with malignant transformation, which were examined at the Department of Oral Pathology, Yonsei University College of Dentistry and were clinically followed up more than 2 years. Monoclonal Cyclin D1 antibody was applied for immunohistochemical study.
The results were as follows:

1. Cyclin D1 expression was shown in 5 out of 25 cases (20%) of the leukoplakia without malignant transformation, and 8 out of 10 cases (80%) of leukoplakia transformed to squamous cell carcinoma.

2. Cyclin D1 was detected in 11 out of 22 cases (50%) showing epithelial dysplasia, while only 2 out of 13 cases (15%) without epithelial dysplasia showed Cyclin D1 expression.

3. Malignant transformation occurred in 10 out of 22 cases with epithelial dysplasia. 20% of mild epithelial dysplasia and all of moderate to severe epithelial dysplasia were transformed to squamous cell carcinoma.

4. There was female prevalence of malignant transformation, and the most frequent site of malignant transformation was tongue.

These results suggest that Cyclin D1 expression appeared to be a predictable biomarker assessing the risk of malignant transformation in oral precancerous lesions.

Key words: leukoplakia, malignant transformation, biomarker, epithelial dysplasia, Cyclin D1