

Employment Status and QOL with Laryngectomized Patients

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Background

The number of patients being diagnosed with perilaryngeal (oral cavity, pharynx, and larynx) cancer is about 27,000 in Japan (Ministry of Health, Labour and Welfare, National Cancer Registry, 2016-2017). Approximately one-tenth of perilaryngeal cancer patients lose their voices owing to total laryngectomy. The incidence of perilaryngeal cancer has increased threefold over the past 20 years, and lower pharyngeal cancer that requires larynx removal has increased remarkably. Therefore, the number of those undergoing total laryngectomy will probably not decrease in the near future.

The laryngectomy is a superior cure, but total laryngectomy leads to the loss of the vocal cords. The quality of life (QOL) is a thing that should be considered most for aryngectomized patients.

Purpose

The purpose of this research was to clarify the change of employment status and QOL from before surgery to twelve months after discharge from hospital among laryngectomized patients.

Methods

Subjects were 199 patients who underwent laryngectomy at six hospitals in Japan and agreed to participate in the research. A leaving method was used to collect questionnaire before surgery and at the time of discharge from hospital. A mailing method was used three, six, and twelve months after discharge from hospital. They were asked about age, sex, family configuration, employment status, and QOL. QOL was measured using the SF-36. Then, norm-based scoring (NBS) based on the national standard value (50) was calculated. We collected descriptive statistics of basic attributes and employment status. A chi-square test was conducted for the analysis of association of employment status, sex, and family configuration with periods ($p < .05$). Analysis of variance was conducted for the analysis of association between age and periods ($p < .05$). The Wilcoxon signed-ranks test was used to detect differences between QOL and its national standard value ($p < .05$).

Subscales : Physical functioning(PF)
Role physical (RP)
Bodily pain(BP)
General health perceptions(GH)
Vitality(VT)
Social functioning(SF)
Role emotional (RE)
Mental health (MH)

【QOL Scale】

The Japanese-language version of the SF-36v2, 3-point or 5-point Likert scale (Fukuhara et al, 1998a, 1998b, and, 2004).

Low scores on the 8 subscales of the SF-36 indicate a poorer QOL.

The eight scores were calculated by Norm based on scoring (NBS) in Japan.

We described NBS as “_N”.

Results

The mean age of patients at the time of surgery was 64.6 ± 8.6 years old (ranging from 39 to 82). They were 176 males (88.4%) and 23 females (11.6%). The mean age of those who were not working was significantly higher than that of those who were working at all time periods. Sex and family configuration failed to affect employment status at a significant level. Before surgery, QOL was significantly different in PF_N, RP_N, GH_N, SF_N, RE_N, and MH_N for those who were working, and in PF_N, RP_N, GH_N, BP_N, SF_N, RE_N, and MH_N for those who were not working. There were significant differences in all subscales at three months after discharge and six months after discharge from hospital. At twelve months after discharge from hospital, there were significant differences in PRP_N, GH_N, SF_N, and RE_N for those who were working, and in PF_N, RP_N, BP_N, GH_N, SF_N, and RE_N for those who were not working.

| | Before Treatment | |
|-----------------------|---------------------------|------------|
| | mean ± S.D (range) / n(%) | |
| Age | 64.6± 8.6 (39-82) | |
| Sex | Male | 176 (88.4) |
| | Female | 23 (11.6) |
| No. of family members | 1 | 24 (12.1) |
| | 2 | 84 (42.2) |
| | 3 or greater | 82 (41.2) |
| | no response | 9 (4.5) |

| Characteristic | n(%) | |
|--------------------------------|--------------------------------|------------|
| Tumor Site | Hypopharynx | 119 (59.8) |
| | Larynx | 35 (17.6) |
| | • glottic | 9 |
| | • supraglottic | 23 |
| | • subglottic | 3 |
| | Others | 20 (10.1) |
| | • Cervical esophagus | 12 |
| | • Tongue | 1 |
| | • Oropharynx | 1 |
| | • Thyroid | 1 |
| • Trachea | 1 | |
| • Unknown | 4 | |
| Unknown (No reply from docter) | 25 (12.5) | |
| Cancer stage | Stage I | 2 (1.0) |
| | Stage II | 5 (2.5) |
| | Stage III | 20 (10.1) |
| | StageIV | 144 (72.3) |
| | Unknown (No reply from docter) | 28 (14.1) |

Table3. QOL Scores : SF36 , Comparison with national standard value

| Questionares | Employment status Average age | pretreatment | | 3months after discharge | | | | 6months after discharge | | | | 12months after after discharge | | | | | |
|--------------|----------------------------------|-------------------|--------|-------------------------|--------|-------------------|--------|-------------------------|--------|-------------------|--------|--------------------------------|--------|-------------------|--------|-------------------|--------|
| | | Employment n=94 | | Unemployment n=90 | | Employment n=43 | | Unemployment n=69 | | Employment n=43 | | Unemployment n=71 | | Employment n=21 | | Unemployment n=61 | |
| | | 61.2± 8.5 (39-82) | | 67.4± 7.1 (45-82) | | 62.1± 7.9 (45-79) | | 66.2± 7.1 (46-83) | | 61.3± 7.9 (43-77) | | 66.3± 7.80(49-83) | | 63.1± 5.1 (57-77) | | 66.9± 8.3 (45-84) | |
| | | mean ± S.D | p | mean ± S.D | | mean ± S.D | p | mean ± S.D | p | mean ± S.D | p | mean ± S.D | p | mean ± S.D | p | mean ± S.D | p |
| PF_N | | 48.5 ± 11.0 | .6540 | 44.0 ± 16.1 | .0261 | 42.0 ± 14.8 | .0024 | 38.6 ± 15.2 | <.0001 | 40.8 ± 16.1 | .0031 | 40.1 ± 12.5 | <.0001 | 41.8 ± 16.3 | .0988 | 42.4 ± 12.3 | <.0001 |
| RP_N | | 40.2 ± 15.8 | <.0001 | 38.3 ± 17.4 | <.0001 | 25.2 ± 14.9 | <.0001 | 28.5 ± 15.8 | <.0001 | 30.5 ± 15.0 | <.0001 | 35.4 ± 13.7 | <.0001 | 32.6 ± 16.3 | <.0001 | 36.1± 14.2 | <.0001 |
| BP_N | | 48.1 ± 10.3 | .0414 | 47.1 ± 11.3 | .0480 | 43.2 ± 11.4 | .0001 | 41.7± 11.2 | <.0001 | 44.4 ± 9.5 | .0001 | 44.9 ± 9.6 | <.0001 | 49.0 ± 10.8 | .8462 | 47.0 ± 9.8 | .0084 |
| GH_N | | 46.5 ± 9.0 | .0001 | 43.9 ± 9.6 | <.0001 | 43.2 ± 7.1 | <.0001 | 41.7 ± 8.9 | <.0001 | 41.7 ± 6.9 | <.0001 | 44.2 ± 9.2 | <.0001 | 44.0 ± 10.3 | .0210 | 45.0 ± 10.1 | .0002 |
| VT_N | | 49.2 ± 10.9 | .4199 | 47.5 ± 12.3 | .1486 | 44.9 ± 11.7 | .0032 | 42.6± 10.3 | <.0001 | 45.4 ± 10.5 | .0272 | 46.5 ± 9.3 | .0026 | 47.4 ± 12.2 | .7416 | 49.4 ± 9.9 | .5238 |
| SF_N | | 40.8 ± 14.4 | <.0001 | 39.3 ± 15.8 | <.0001 | 31.0 ± 12.2 | <.0001 | 34.0 ± 14.1 | <.0001 | 34.2 ± 12.4 | <.0001 | 37.8 ± 13.0 | <.0001 | 35.3 ± 14.8 | .0003 | 40.2 ± 13.9 | <.0001 |
| RE_N | | 40.2 ± 15.0 | <.0001 | 39.0 ± 15.8 | <.0001 | 31.0 ± 14.9 | <.0001 | 32.0 ± 14.8 | <.0001 | 35.2 ± 15.0 | <.0001 | 37.2 ± 14.5 | <.0001 | 35.5 ± 15.7 | .0005 | 39.8 ± 14.2 | <.0001 |
| MH_N | | 43.2 ± 11.5 | <.0001 | 40.3 ± 13.0 | <.0001 | 42.1 ± 10.5 | <.0001 | 41.8 ± 11.0 | .0001 | 43.1± 10.5 | <.0001 | 44.3± 11.0 | .0001 | 45.6 ± 12.4 | .5603 | 47.7 ± 11.0 | .1389 |

Wilcoxon signed-rank test ($p < .05$)

Conclusions

QOL was generally declining before surgery and remained low until twelve months after discharge from hospital. It was found that, regardless of whether or not they were working, their low physical functions and pain continued, restricting their daily lives for physical and psychological reasons. It is thought that those who continue to work face difficulties in the workplace. It is necessary to continue physical and psychological support for those who want to continue to work after their discharge from hospital. Therefore, we must establish a support system from employers.

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