

Prophylactic replacement of voice prostheses; Can it be done? A retrospective cohort study

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Background

Due to the unpredictability of device life, voice prosthesis (VP) leakage in patients after laryngectomy is a major stressor and reduces quality of life. We therefore explored the possibility of prophylactic replacement of VPs.

Methods

All patients laryngectomized between January 2000 and December 2012 and using VPs (n=194). VPs were divided into 'regular' (Provox2, Provox Vega) and 'problem solving' VPs (Provox ActiValve Light and Strong). For calculating the device life the VPs were split into three groups: Regular VPs, problem-solving VPs, and regular VPs after using a problem-solving VP. We calculated the median device lifetimes per device type. The moment for prophylactic replacement was set at the day of the found device life where 50% or 70% off all VPs were still in situ and did not leak. We calculated the predicted number of VPs and the additional number of VPs per patient per year. This was based on the indication for laryngectomy, type and order of VPs used in the study period.

Results

The 194 patients used 3062 VPs. The mean number of VPs used per person per year was 3.4 (0.13-48.03). A difference in device life was found for patients who underwent salvage TL compared to other indications TL.

The respective numbers of additional VPs used per patient per year to prevent 70% and 50% of the leakages are shown in the tables and figure.

Conclusions

Prophylactic replacement involves the use of more VPs per patients. Further research should establish not only whether this is feasible and for whom, but also the costs, benefits and patients' willingness to undergo these additional replacements.



	Regular VPs	Problem-Solving VPs	Regular VPs after problem solving VPs
Salvage TL	62 days	186 days	42 days
Other indications TL	91 days	116 days	54 days
Median device life per Indication total laryngectomy (TL)			

Percentiles	Used VPs	Predicted VPs (50%)	Additional VPs (50%)	Predicted VPs (70%)	Additional VPs (70%)
25	2.2	4.7	1.3	6.8	3.5
50	3.4	5.4	2	8.1	4.3
75	5.2	6.7	2.7	9.3	5.2
VPs per patient per year in prophylactic replacement model					

