

Nutritional aspects of advanced Head and Neck Cancer and impact of different factors in Head and Neck Cancer of Unknown Primary

Akademisk avhandling

Som för avläggande av medicine doktorexamen vid Sahlgrenska akademien, Göteborgs universitet kommer att offentligen försvaras i Sahlgrenska aula, Blå stråket 5, Sahlgrenska Universitetssjukhuset, Göteborg, fredagen den 15 juni 2018, klockan 09.00

av

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Avhandlingen baseras på följande delarbeten

- I. Axelsson L, Silander E, Nyman J, Bove M, Johansson L, Hammerlid E.
Effect of prophylactic percutaneous endoscopic gastrostomy tube on swallowing in advanced head and neck cancer: A randomized controlled study. *Head Neck*. 2017;39(5):908-915
- II. Axelsson L, Silander E, Bosaeus I, Hammerlid E. Bioelectrical phase angle at diagnosis predicts survival in advanced head and neck cancer. *Manuscript-Submitted*
- III. Axelsson L, Silander E, Bosaeus I, Hammerlid E. Bioelectrical phase angle over time as prognostic factors for survival in advanced head and neck cancer. *Manuscript-Submitted*
- IV. Axelsson L, Nyman J, Haugen-Cange H, Bove M, Johansson L, De Lara S, Kovács A, Hammerlid E. Prognostic factors for head and neck cancer of unknown primary including the impact of human papilloma virus infection. *J Otolaryngol Head Neck Surg*. 2017;46(1):45
- V. Axelsson L, Holmberg E, Nyman J, Högmo A, Sjödin H, Gebre-Medhin M, von Beckerath M, Ekberg T, Farnebo L, Talani C, Norberg Spak L, Notstam I, Hammerlid E. Swedish national register multicenter study on head and neck cancer of unknown primary: Impact of treatment. *Manuscript-Submitted*

SAHLGRENKA AKADEMIN
INSTITUTIONEN FÖR KLINISKA VETENSKAPER



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Abstract

Background/Aims: Swallowing problems and malnutrition are common in advanced head and neck (HN) cancer. The aim of paper I was to study whether percutaneous endoscopic gastrostomy (PEG) affected the long-term swallowing function. Phase angle (PA) is a measure of the electrical permeability of tissues and has been found to be a prognostic factor in different diseases; the aim of papers II-III was to investigate the PA in HN cancer. Head and neck cancer of unknown primary (HNCUP) is a rare type of HN cancer. The aim of papers IV-V was to investigate the importance of human papillomavirus (HPV), different clinical factors and treatment in HNCUP.

Methods/Results: Paper I: Randomized, controlled, long-term study of 134 patients with advanced HN cancer: half of the patients had a prophylactic PEG, and the remaining patients received nutritional support. There was no significant difference in swallowing function according to the quality of life questionnaires or oral intake scale, esophageal disease, body mass index or survival between the groups. **Papers II-III:** Prospective study of the same patients as in paper I. The patients were measured with bioelectric impedance analysis at diagnosis and during follow-ups. Low value of PA at diagnosis and at 1, 2, 3, 6, 12 and 24 months after the start of treatment and after 8 years were significant negative factors for survival. At diagnosis, a cut-off value at 5.95° provided the best prediction of 5-year survival. The PA decreased after start of treatment, was lowest at 3 months and returned to the baseline value at 12 months. **Paper IV:** Retrospective study of 68 patients with HNCUP treated with curative intent. The tumors were HPV-positive in 69% of the cases. The overall 5-year survival was 82%. Advanced age, negative HPV status and higher N stage were negative factors for survival. **Paper V:** National, multicenter, register study of 260 patients with HNCUP. Treatment with neck dissection and radiation resulted in similar outcome as did (chemo)radiation. Advanced age, worse performance status and higher N stage were negative factors for survival.

Conclusions: The use of PEG in advanced HN cancer does not increase the risk for long-term swallowing problems. The PA at diagnosis and during and after the treatment predicts survival in HN cancer. HPV infection is common in HNCUP and is associated with better survival. Age and N stage are significant prognostic factors for survival. Treatment with neck dissection and radiation seem to result in a similar survival as (chemo)radiation.

Keywords: Head and neck cancer, swallowing problems, percutaneous endoscopic gastrostomy, bioelectrical impedance analysis, phase angle, unknown primary, human papillomavirus, prognostic factors, treatment, survival.