Morbidity after neck dissection in head and neck cancer patients

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GENERAL DISCUSSION
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Head and neck cancer treatment leads to considerable morbidity; physically, emotionally, and socially. After interviewing and physically examining over 150 patients we became more aware of the fact that all patients are having their own specific problems and their own specific way of coping with their problems. We examined patients with severe changes in the external appearance, spinal accessory nerve dysfunction, and severe shoulder disfigurement without complaints, while other patients with no visible external changes and without physical loss, were not able to get on with their lives because of pain or a severe depression.

In this thesis the incidences of shoulder complaints after radical, modified and selective neck dissections that occur after head and neck cancer treatment are described. In the pilot study the conclusion was that after supraomohyoid neck dissection still 28% of 52 patients experienced shoulder complaints, but activities of daily life were hardly restricted. In this study we gathered data through a self developed questionnaire, although the questions were used in other questionnaires, our questionnaire was not tested for its reliability. From this data we could not analyse what kind of pain patients experienced neither could we conclude if patients had a “shoulder syndrome” as a consequence of spinal accessory nerve dysfunction or that other pain mechanisms were underlying. The results of this pilot study prompted us into further research.
In the clinical multicentre study the complaints of 177 patients were assessed during hospital stay. Non-selective neck dissections were a risk factor for post-operative shoulder pain and a reduced range of motion of the shoulder. Patients were on average 13 days after surgery. In this period it is difficult to distinguish scar pain after surgery from shoulder pain as a consequence of spinal accessory nerve dysfunction. Effects of radiation therapy were not included in that study. Therefor the effects found in that study can not be generalised to the total patient population. It would have been interesting to execute a follow up study of this specific group to measure the morbidity a year after operation, and to analyse the risk factors again. Currently we are performing a prospective multicentre study to analyse head and neck cancer patients before and after surgery and after 3 months follow up.
In a cross-sectional study design 155 patients were included and their post-operative complaints were analysed. A prospective study would have given a better estimation of the prevalence of complaints after head and neck cancer treatment, because patients at risk could have been identified more easily. However, a better understanding in several aspects of post-operative morbidity was obtained. The role of the spinal accessory nerve in shoulder complaints after treatment was investigated. The spinal accessory nerve dysfunction was assumed to be present if two of three physical signs were present: trapezius pars descendens muscle atrophy, shoulder drop and a changed scapula position. These signs were chosen because they can easily be assessed during a physical examination and are strongly related to trapezius dysfunction. In about 50% of the patients after neck dissection the spinal accessory nerve was involved in shoulder complaints. This implicates that shoulder complaints after neck dissection can no longer solely be attributed to spinal accessory nerve dysfunction. Another important outcome of that study was that of the patients after supraomohyoid neck dissection that perceived shoulder complaints, a spinal accessory nerve dysfunction is present in only 6%.

Also the neck itself was examined in our study. The neck is directly affected by neck dissection and often exposed to radiation therapy. It was concluded that several patients suffer from neck pain as well as loss of sensation. Neck pain was often accompanied by shoulder pain. Notable was that neck pain was strongly associated with neuropathic pain (hyperpathia and allodyia) while shoulder pain was more often associated with myofascial pain. These findings have consequences for the choice of treatment. The treatment for neuropathic pain is medication, while for myofascial pain physical therapy or a multidisciplinary program seems to be the treatment of choice.

Radiation therapy has influence on sensation and range of motion, and seems to have influence on pain. In this study all patients underwent surgery, thus radiation therapy could not be evaluated solely. Further radiation therapy was often performed on patients with extensive operations (radical or modified radical neck dissection) which makes it impossible to analyse the influence of the treatment modalities separately. The decrease in range of motion is related to fibrosis. In a study in which only radiation therapy is provided as cancer treatment the influence of radiation therapy on range of motion can be analysed further.
In the quality of life study a remarkable outcome was the relatively high scores (meaning a good quality of life) of patients on the RAND 36, compared to the control group. Patients scored even better on perceived pain. It would be interesting to further investigate this outcome. Maybe patients who survive cancer may also have positive feeling after their treatment period after surviving the disease. As a consequence they might live more intense, which improves their quality of life.

The most important outcome in the quality of life study was depression. Depression has a multidimensional construct with physical and emotional items and it is of importance to assess depression during and after cancer treatment. But also physical complaints have an important influence in several domains in quality of life, such as limitations due to physical problems, and bodily pain. In this quality of life study many other important consequences were not assessed like fatigue, physical condition, fear of recurrence, digestive problems, sleep problems, reintegration in work, sexual problems etc. All these post-treatment problems may have impact on patients quality of life. In a new study much more aspects of morbidity after cancer treatment must be investigated.

In our last study we focussed on depression partly because of the results of our quality of life study. The somatic morbidity after cancer treatment depends on type of cancer and type of treatment. Patients after head and neck cancer treatment score high in the somatic domain, when assessing depression with the CES-D the influence of somatic morbidity must be taken into account.

Clinical implications

Through this study a better understanding in the diversity of complaints in patients after head and neck treatment was achieved. Knowledge about problems on which a surgeon, physical therapist, nurse or psychologist can focus during a medical check up or treatment. This diversity in patients and problems makes a good communication between physician and patient mandatory to identify these specific problems.

How can patients, after head and neck cancer therapy, benefit from the results of this thesis.

Together with the Dutch Physical Therapy Neck Dissection Study Group (Nederlandse Fysiotherapie Halsklierdissectie Studie Groep, NFHSG),
physical therapy guidelines for patients after neck dissection were developed (appendix 1). The guidelines include diagnostic criteria, information for colleagues, an exercise program for shoulder problems after neck dissection, treatment advises and a research protocol to assess patients prospectively. Currently we are implementing this protocol, together with the study group, in a new prospective multi-centre trail to further analyse patients complaints before and after cancer treatment. We sincerely hope that patients, and physical therapists, will benefit from the guidelines.

Some research into the effects of physical therapy has been done (appendix 2). Several authors report good results of physical therapy programs but so far only one controlled trial has been executed and has shown some beneficial effects of physical therapy. Physical therapy programs should, as part of a multidisciplinary approach, be further tested on its effectiveness.

In the follow up after surgical treatment, attention must be given to a possible accessory nerve dysfunction. Currently patients are often asked to shrug their shoulders to assess trapezius muscle dysfunction. From our study it became clear that for a quick assessment of trapezius muscle function the patient should be asked to abduct both arms on the same time, and look for differences in range of motion. When differences are found or when patients report shoulder pain an inspection of the shoulder region is of importance to assess the trapezius muscle and to investigate the type of pain.

Furthermore psychological problems, especially depression, are of importance to assess in the post-clinical phase because of its influence on quality of life. Integrating a questionnaire or standard questions to assess depression into the follow-up in the medical care after cancer treatment, must be considered.

Pain is one of the most important forms of morbidity. We conclude that several types of pain are present in patients after head and neck cancer therapy. These types of pain may change during the different stages after surgery or radiation therapy. A distinction should be made in nociceptive, neuropathic, and myofascial pain. However in all types of pain the influence of psychological or social problems must be considered. Neuropathic pain seems to be related to neck pain while myofascial pain seems to be more present in shoulder muscles. Unknown is the pain related to the resection of the primary tumour.

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In our post-clinical study only 17 (11%) of the patients used pain medication of which 15 used paracetamol or NSAID’s. Specific medication for neuropathic pain was hardly used. Forty-one (26%) patients were treated by a physical therapist after the clinical period, but the indication for physical therapy was unknown. According to the amount of patients with pain in this study, pain management needs more attention after cancer treatment.

The radical neck dissection and it’s modifications have lead to improvement of survival of head and neck cancer patients. The morbidity of these treatments is complex and fragmentarily studied. Therefor there is no evidence based treatment strategy. Now we have got more insight in this complex morbidity, treatment protocols must be directed to the individual problems of patients and evaluated in prospective studies.

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