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SFORL Guidelines

Management of somatic pain induced by head-and-neck cancer treatment: Definition and assessment. Guidelines of the French Oto-Rhino-Laryngology- Head and Neck Surgery Society (SFORL)



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ARTICLE INFO

Keywords:

Acute pain
 Chronic
 Neuropathic pain
 Psychogenic pain
 Assessment

ABSTRACT

Objectives: The authors present the guidelines of the French Oto-Rhino-Laryngology- Head and Neck Surgery Society (Société française d'oto-rhino-laryngologie et de chirurgie de la face et du cou [SFORL]) for the management of somatic pain induced by head-and-neck cancer treatment, and in particular the instruments needed for the definition and initial assessment of the various types of pain.

Methods: A multidisciplinary work group was entrusted with a review of the scientific literature on the above topic. Guidelines were drawn up, based on the articles retrieved and the group members' individual experience. They were then read over by an editorial group independent of the work group. The final version was established in a coordination meeting. The guidelines were graded as A, B, C or expert opinion, by decreasing level of evidence.

Results: The priority is to eliminate tumoral recurrence when pain reappears or changes following head-and-neck cancer treatment. Neuropathic pain screening instruments and pain assessment scales should be used to assess pain intensity and treatment efficacy. Functional rehabilitation sessions should be prescribed to reduce musculoskeletal pain and prevent ankylosis and postural disorder. Psychotherapy and mind-body therapy, when available, should be provided in case of chronic pain. In case of recalcitrant complex pain, referral should be made to a multidisciplinary pain structure.

Conclusion: The management of somatic pain induced by head-and-neck cancer treatment above all requires identifying and assessing the intensity of the various types of pain involved, their functional impact and their emotional component.

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1. Introduction

In head and neck oncology, pain is often a tumor-revealing symptom. In most cases, treatment and cure of the cancer will relieve or abolish pain: persistence, recurrence or change in type suggests evolution or recurrence of the disease [1] (level

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of evidence 2). Even when complete cure is achieved, treatment (chemotherapy, surgery, radiation therapy) is heavy and may leave esthetic, functional, psychological and painful sequelae. All these components enter into the assessment and management of treatment-induced pain.

The present guidelines seek to provide the practitioner with the toolbox required for the definition and initial assessment of the various types of pain induced by head-and-neck cancer treatment.

2. Method

A multidisciplinary work group was set up and entrusted with a review of the scientific literature on the study topic. The group met several times and drew up a position paper as a basis for guidelines. The resultant texts were read over by an editorial group independent of the work group. The final version of the guidelines was drawn up in a coordination meeting.

Guidelines were graded A, B or C according to decreasing level of evidence, following the literature analysis and guideline grading guide published by the ANAES national health accreditation and assessment agency. Where no precise level of evidence could be stipulated, the guideline was classified as an expert opinion, derived from discussion between work group members.

3. Guidelines

3.1. Definition of pain

3.1.1. Acute pain, chronic pain

Pain is defined as “an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage” [2] (level of evidence 1). Acute pain is a symptom, serving a biological function of protection (alarm signal) [3] (level of evidence 1). It contributes to etiologic diagnosis, and decreases and resolves when etiologic treatment is implemented.

Chronic pain is a multidimensional syndrome expressed by the victim (“pain disease”). The term “chronic pain” applies in case of several of the following criteria: persistence or recurrence, lasting longer than usual for the presumed initial cause, especially when evolving for more than 3 months; insufficient response to treatment; significant progressive deterioration due to pain in functional and relational capacity in daily activity, at home or at work [4] (level of evidence 1). Assessment should take account of the various resulting psychological and behavioral factors and treatment should include psychogenic and social factors if it is to be effective [2] (level of evidence 1).

“Sentinel” pain is a pain that recurs or changes, raising the difficult problem of differential diagnosis between tumoral recurrence and treatment sequela. Clinical, endoscopic and/or imaging investigation is required [5] (Expert opinion).

Guideline 1

It is recommended to give priority to removing recurrent tumor in case of pain reappearing or changing following head-and-neck cancer treatment (Expert opinion).

3.2. The various types of pain

Cancer treatment-induced pain is particularly complex and multidimensional. It includes nociceptive, neuropathic and mixed components at multiple locations. There is systematic specific

psychological suffering related to disturbance of essential functions (language, swallowing, body image) and their psychosocial consequences. Precisely diagnosing the respective roles of these mechanisms, with their specific treatments, is essential for efficacy.

3.2.1. Nociceptive pain

Pain due to excessive nociception results from overstimulation of the head and neck nociceptive system, due to tumor expansion and inflammation (compression, ischemia, infection, destruction of tissue structures releasing algogenic substances, etc.) and to the specific type of treatment (surgery, radiation therapy, chemotherapy). Chemotherapy and radiation therapy cause severe pain (mucositis, post-radiation necrosis, etc.). Nociceptive pain responds to analgesia, which reduces or interrupts the transmission of nociceptive messages at peripheral (NSAIDs, corticosteroids) and/or central level (paracetamol, opioids) [6] (Expert opinion).

Temporal pain analysis distinguishes between background pain, present almost continuously, and paroxysmal pain, which is a transient increase in intensity. Paroxysmal pain usually lasts less than 10 minutes and does not exceed 1 hour; it requires powerful, fast-acting treatment. It may be predictable, triggered by feeding, swallowing, dressings, neck movement, etc., or occur spontaneously. In case of more than 4 episodes per day, the maintenance regimen should be reconsidered [7] (level of evidence 4).

3.2.2. Neuropathic pain

Neuropathic pain is secondary to a peripheral or central nervous system lesion, altering the nociceptive transmission and/or control processes. In head and neck cancer, it is mainly peripheral. It can also be caused by distal demyelination in certain curative treatments (platinum or taxane based chemotherapy) and is exacerbated by underlying alcohol-related neuropathy [8] (level of evidence 4).

Neuropathic, like nociceptive, pain may be localized or projected (hemicrania continua, reflex otalgia, neck pain, etc.). It may be exacerbated by neurovascular or cerebral mechanisms. This convergence also explains the reflex muscular responses (contracture, trismus, etc.) and the involvement of the vigilance and emotional systems (tension headache, anxiety, depressive syndrome, etc.). Ortho- and para-sympathetic innervation, depending on the cranial nerves, explains vasomotor headache.

3.2.3. Musculotendinous pain

Sequellar pain localized in the neck and shoulder region concerns more than one-third of patients. There are various mechanisms: neuropathic, as described above; myofascial, related to post-radiation fibrosis or myocutaneous flap reconstruction; or articular, in the cervical, scapular or temporomandibular joints [9] (level of evidence 3).

Guideline 2

Functional rehabilitation should be prescribed to reduce musculoskeletal pain, prevent ankylosis and postural disorder, and restore functional capacity (Expert opinion).

Accessory nerve palsy (XIth cranial nerve) may occur in neck dissection. Frequency and severity depend on the type of dissection [10,11] (level of evidence 3) and are increased by postoperative radiation therapy. Scapulohumeral pain is severe, of mechanical origin; abduction is impaired, at <90°, the shoulder falls and the shoulder blade becomes detached. The pain is caused by

stretching of the angular muscle and by subacromial impingement, leading even to retractile capsulitis [11] (level of evidence 3).

3.2.4. Psychological components

Pain is a multidimensional experience: sensory, emotional, behavioral and cognitive. It is initially experienced as a somatic event with behavioral impact: the alarm signal of pain leads to behavioral patterns of care and protection to attain relief. The emotional aspect is of a general nature: the difficulty of specifying it lies in the singularity of the experience of pain. From the cognitive point of view, pain alters the subject's perception of the environment. In the literature of cognitive-behavioral theory, such perceptions or "beliefs" are described as presuppositions acting as a filter or matrix of the interpretation of reality, affecting the behavior of patients in pain [12] (level of evidence 2).

Correlated to such psychological vulnerability, the patient may catastrophize, showing a pattern of pessimistic thought, expectation and representation that mediates the attention paid to the pain. The representations common to head and neck cancers (disfiguration, asphyxia, hemorrhage) are associated with a fear of suffering and the expectation of fatal outcome [13] (Expert opinion).

Onset or persistence of pain may cause psychological distress to the point of adaptation disorder or anxiety and depressive disorder.

The same holds for pain and depression. Pain may cause psychological distress, impairing the subject's coping capacity [14] (Expert opinion).

Guideline 3

Multidisciplinary pain management should include psychotherapy in case of chronic pain. The techniques (cognitive-behavioral or psychoanalytic) should be determined by the patient's demand and the therapist's training (Expert opinion).

Guideline 4

When available, mind-body therapy should be proposed, performed by a trained care professional, for receptive patients with pain following head and neck cancer treatment (Expert opinion).

3.3. Pain assessment

Pain assessment has various objectives.

The first is to confirm the diagnosis of pain experienced by the patient: this implies "believing the patient" and his or her complaint. The second is to quantify the pain. The third is to assess the specificities of the respective types of pain and the efficacy of the appropriate treatments [15] (level of evidence 1).

Assessment is difficult in patients unable to communicate, and notably in elderly patients with cognitive disorder. Observational scales can be implemented by care staff: Doloplus, Algoplus (which will soon be available in English) and, in French, the ECPA (Échelle comportementale pour personnes âgées). Head-and-neck cancer patients can use all the various self-assessment scales: speech-related difficulties in no way impair thought and understanding. Finally, assessment and reassessment measures treatment impact

in terms of efficacy and side-effects, for long-term follow-up of therapy.

3.3.1. Initial assessment

Initial assessment is in the form of a semi-structured interview [15] (level of evidence 1), collecting patient history, medical history, curative treatments, evolutive stage, history of pain, modality of onset, evolutive profile (pain-free/continuous pain interval, paroxysmal pain), trigger factors (physical or psychological stimulation), and analgesics (efficacy, side-effects and compliance). Also to be noted are cognitive factors such as expectation with regard to treatment (miracle drugs), representation of pain (recurrent and sequellar pain) and beliefs regarding disease and treatment.

3.3.2. Psychometric quantitative assessment

Pain intensity can be measured on three one-dimensional self-assessment scales which have the same metrologic quality in terms of validity, sensitivity and reproducibility [16] (level of evidence 1): the visual analog scale (VAS slide-rule), the numerical Likert scale (figure between 0 and 10 reported verbally or on paper), and the simple verbal scale (choice of label to describe pain (0–4): no pain, weak, moderate, intense or extremely intense pain). These do not, however, assess the other dimensions of pain or specify diagnosis or mechanism. They do not enable inter-subject comparison, but are useful for indicating initiation of treatment (necessitated by VAS > 30 mm; severe pain if > 60/100) and for follow-up [15] (level of evidence 1). Measurements should be made at varying times: present, mean level for the previous week, maximum experienced intensity. Variation on VAS assesses treatment efficacy. The "beneficial" change in intensity (i.e., clinically relevant for a therapeutic effect) is a reduction of 2 points or 30%, associated with a feeling of improvement, as reported in several studies, independently of pathology or patient age; a reduction of 4 points or > 50% is associated with a feeling of very great improvement [17–19] (level of evidence 1).

Pain impact and treatment efficacy can also be assessed in terms of effect on the patient's pain-related behavior; there are several such scales, based on the Brief Pain Inventory (BPI) [15–19] (level of evidence 1). The 6-item French version of the Brief Pain Inventory (Questionnaire Concis de la Douleur: QCD) [15] (level of evidence 2) measures the impact of pain on sleep, functional capacity, mood, work, relations with others and enjoyment of life, on a scale from 0 to 10; however, item scores are analyzed separately and the global sum of item scores is not a valid pain parameter; variations in BPI item scores have been validated as being relevant in certain pathologies [16,17] (level of evidence 1).

3.3.3. Multidimensional qualitative pain assessment

The Saint Antoine pain questionnaire (Appendix 1) assesses the sensory and emotional components of pain [15] (level of evidence 1). Terms describing pain are graded by the patient to assess both somatic and affective impact and in particular to identify the emotional and neuropathic components on the items "burn", "electric shock" and "vise".

Impact on sleep (one-dimensional categoric or specific scale [15] (level of evidence 1)), anxiety and depression associated with chronic pain is also assessed. Two scales have been validated in French: the Beck Depression Inventory (BDI), and the Hospital Anxiety and Depression scale (HADs) (Appendix 2), which has been validated for internal medicine, is quick to administer and assesses the subject's emotional status in terms of anxiety or depression. Reduced physical and social function often correlate with a high anxiety score, and asthenia with a high depression score. Diagnosis

and psychological assessment are often made by interview with a psychologist or psychiatrist.

3.3.4. Specific assessment of neuropathic pain

Neuropathic pain is diagnosed on a simple instrument such as the DN4 [20] (level of evidence 1) (Appendix 3) and assessed on the NPSI (Neuropathic Pain Symptom Inventory), which has been validated in French [21] (level of evidence 1) and is sensitive to change, with a correlation between change in global score and pain relief [21] (level of evidence 1).

3.3.5. Overall assessment of change under treatment

Overall assessment of change under treatment is based on the patient's experience, assessing global pain on self-assessment scales. Perceived change differs widely between patient and physician and from patient to patient [19] (level of evidence 1). The 7-point Patients' Global Impression of Change (PGIC) scale includes a Clinical Global Impression form for patient (CGI-P) and examiner (CGI-E) to allow comparison between the two viewpoints.

The evolution of drug intake also reflects treatment efficacy.

Compliance and tolerance (side-effects) as assessed from a diary are good ways of monitoring pain and drug intake. Quality of life correlates with level of pain [15,16] (level of evidence 1). The SF 36 quality of life scale or its shorter form (SF12) are the most widely used instruments in clinical research, but are difficult to apply in routine clinical practice. Simpler categoric scales (BPI) may be used.

Guideline 5

Pain assessment scales should be used to assess pain intensity and treatment efficacy (Grade A).

Guideline 6

The DN4 diagnostic scale should be used to identify neuropathic pain so as to prescribe adapted specific treatment (Grade A).

3.4. Complex recalcitrant pain

In persistent recalcitrant pain resisting clinical analysis and well-conducted primary treatment, often with a component of anxiety and depression as presenting symptom, mistaken interpretation and beliefs regarding pain and the disease impair the doctor-patient relationship and thus compliance and treatment efficacy [4] (Expert opinion).

Management of recalcitrant pain should begin with specialized and documented clinical analysis of the various physiopathological mechanisms, the patient's evolutive profile (evolving cancer, recurrence, sequelae), assessment of the various components of pain, their level of intensity and repercussions (sleep, etc.) and aggravating factors (somatic, sensory disability, anxiety, depression, emotional suffering, fear of death).

Treatment can be adapted based on this analysis [22] (level of evidence 3). Recalcitrant pain requires global management, dealing simultaneously with the somatic aspect and psychological and social issues [4] (Expert opinion).

Peripheral neuropathic pain		
Focal lesion	Diffuse lesion	
Topical treatment Lidocaine compress (marketing authorization for post-herpes zoster pain)	Oral monotherapy either:	
Second step: capsaicin patch	Pregabalin Gabapentin	Antidepressants: clomipramine amitriptyline
Treatment monitoring every 2 weeks / 1 month		
Effective	Failure or insufficient or adverse effect: Change molecule in monotherapy Or associate 2 drugs of different class	
Continue present treatment	Failure or insufficient or adverse effect:	
	Neurosurgery: neurostimulation	Antidepressant serotonin or noradrenalin reuptake inhibitor Other antiepileptics Opioids

Fig. 1. Treatment algorithm for neuropathic pain.

From reference [24] (Expert opinion).

Assessment of efficacy, tolerance and compliance allows subsequent treatment strategy to be adapted. For nociceptive pain, in case of failure, changes should be made in the drugs (rotation), administration route (parenteral, self-dosed analgesia), associations with anti-hyperalgesics (ketamine, etc.), and, if necessary, neurosurgical or interventional radiation techniques (trigeminal thermocoagulation, perimedullary or central infusion of strong opioids). For neuropathic pain, second or third-line drugs are introduced according to validated algorithms [22,23] (Expert opinion) (Fig. 1). In all cases, global management requires multidisciplinary teamwork to draw up a consensual multimodal treatment program.

Guideline 7

Complex recalcitrant pain requires global management. The patient should be referred to a multidisciplinary team (pain structure) (Expert opinion).

Acknowledgments

The authors thank all the members of the editorial group who took part in drawing up the present Guidelines:

- Pr Christian Righini, ENT-H&NS, Grenoble;
- Dr Erwan De Mones Del Pujol, ENT-H&NS, Bordeaux;
- Dr Denis Baylot, Anesthesiologist/Intensive Care physician, Saint-Étienne;
- Pr Philippe Schultz, ENT-H&NS, Strasbourg;
- Dr Sylvie Boisrame Gastrin, Odontologist, Brest;
- Pr Jean Lacau Saint Guily, ENT-H&NS, Paris;
- Dr Alexandre Bozec, ENT-H&NS, Nice;
- Dr Jean Louis Bourgain, Anesthesiologist/Intensive Care physician, Paris;
- Dr Florence Rogez, ENT-H&NS, Brest;
- Dr Dominique De Raucourt, ENT-H&NS, Caen;
- Dr Gérald Valette, ENT-H&NS, Brest.

Appendix 1. Saint Antoine pain questionnaire.

The **Questionnaire Douleur Saint Antoine** is derived from the Short-form McGill Pain Questionnaire, below.

Pain Quality	None 0	Mild 1	Moderate 2	Severe 3
Throbbing				
Shooting				
Stabbing				
Sharp				
Cramping				
Gnawing				
Hot-burning				
Aching				
Heavy				
Tender				
Splitting				
Tiring-exhausting				
Sickening				
Fearful				
Punishing-cruel				

Appendices 2 and 3. Supplementary data

Supplementary data (Appendices 2 and 3) associated with this article can be found, in the online version, at <http://dx.doi.org/10.1016/j.plantsci.2004.08.011>.

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