“Should I quit smoking?”

Impact of smoking on cancer treatment

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Questions from the nursing staff

- Do smokers have less effect of cancer treatment?
- Higher risk of side effects? What kind?
- Higher risk of complications? What kind?
- Increased mortality/morbidity among smokers compared with non-smokers?
- Do smokers have prolonged hospital stays?
- Higher risk of recurrence?
- **What is the effect of quitting smoking?**
- What smoking cessation measures are effective?
- How long in advance should patients stop smoking?

What kind of advice should we provide to our patients?
PICO

**P** : Chemotherapy, radiation therapy

**I** : Smoking, nicotine, tobacco, cigarettes

**C** : Quit smoking

**O** : Side effects, complications, mortality, morbidity, treatment efficacy, relapse, secondary cancer, hospital days
Search terms

P : *Smoking/ *Tobacco/ *Nicotine/ **"Tobacco Use Disorder"/ (smok* or nonsmok* or non-smok* or cigaret* or tobacco* or nicot*).ti.

I : (radiother* or brachyther* or radioimmunother* or chemother* or chemo-radiat* or chemoradiat* or cytostat* or cytotox* or chemoradiother* or chemoimmunother*).ti. ((irradiat* or radio* or radiat*) adj (treatment* or therap*)).ti. *Cytostatic Agents/ or exp *Neoplasms/dt or (*antineoplastic agents/ or exp *antibiotics, antineoplastic/ or exp *anticarcinogenic agents/ or exp *antimetabolites,antineoplastic/ or exp *antimitotic agents/ or exp *antineoplastic agents, alkylating/ or exp *antineoplastic agents, hormonal/ or exp *antineoplastic agents, phytogenic/ or exp *myeloablative agonists/) or *Chemotherapy, Adjuvant/ or *Antineoplastic Combined Chemotherapy Protocols/ or (*radiotherapy/ or *brachytherapy/ or *radioimmunotherapy/ or *radiotherapy, adjuvant/ or *radiotherapy,computer-assisted/ or *radiotherapy dosage/ or *radiotherapy, high-energy/)
Guidelines and databases

National Guidelines from Directorate of Health (Helsedirektoratet)
Guidelines International Network (G-I-N)
National Institute for Health and Clinical Excellence (UK)
Danish Centre of Clinical Guidelines
The Health Care Manual (Vardhandboken) – Sweden
Joanna Briggs (Aus)
(Best Practice Information Sheets, Evidence Recommendations, Systematic Reviews)
UptoDate
Best Practice
Clinical Evidence
The Cochrane Library
MacPlus Search from McMaster
Medline
Systematic search of the literature

- By librarian specialist Gunn Kleven
  January - May 2012
- A few non-specific guidelines on smoking cessation
- Numerous single studies Critical Review of the Literature
- Request to Relis (Pharmaceutical Information Center)
- Search December 2012: New Guideline from ASCO
- New search autumn 2014 confirms and elaborate previous findings
Findings
Several studies support the conclusion that patients who continue to smoke have poorer effect of the cancer treatment compared with those who quit - whether the cancer diagnosis is related to smoking or not.

Continued tobacco use is also associated with a higher degree of toxicity.

(ASCO 2012)
The adverse effects of smoking are not limited to cancer diagnoses associated with tobacco, such as lung cancer or head/neck cancer.

(Warren 2013)
Continued smoking is associated with a higher mortality risk for several groups:

- **Breast cancer** (Hooning et al 2007, Li et al 2009)
- **Prostate cancer** (Kenfield et al 2011, Joshu 2011)
- **Colorectal cancer** (Phipps et al 2011)
- **Esophageal cancer** (Kountourakis et al 2011)
- **Cervical cancer** (Waggoner et al 2006)
- **Ovarian cancer** (Schlumbrecht et al 2011)
- **Leukemia (BMT)** (Ehlers et al 2011)
- **Lymphoma** (Talamini et al 2008)
Continued smoking increases the risk of ...

- Reduced effect of cancer therapy
- Postoperative complications and prolonged recovery
- Cardiovascular and respiratory complications
- Recurrence of cancer
- Secondary malignancies
- Poorer prognosis
Surgical treatment

- Serious lung complications and complications during anesthesia
- Decreased wound healing
- Increased likelihood of SSIs (surgical site infections)


It is disputed whether quitting shortly before an operation might increase lung complications. Important to remove the tube quickly after surgery.
Surgical treatment

Meta Analysis n= 7616:

✓ Smokers had a higher risk of tissue necrosis, ischemia and impairments in wound healing

(Krueger & Rohrich 2001)
Radiation therapy

✓ Lower response rates among active smokers compared with former smokers and those who had quit before starting treatment

(ASCO 2012, Bowman et al 2002)

✓ Increased toxicity and side effects; oral mucositis, taste alteration, dry mouth, weight loss, fatigue, pneumonia, bone and tissue necrosis and poor voice quality

A study of patients with ENT cancer who smoked, found that patients who received RT in the morning had significant reduction of mucositis compared with those who received treatment in the afternoon - the effects of smoking can be acute reversible.

(Bjarnason et al 2009)
Radiation therapy

✔ Patients with cervical cancer who received RT (n = 3489)
Correlation between smoking and major complications in the rectum, bladder and bowel

(Eifel et al, 2002)

✔ Patients with prostate cancer (n = 836)
Smoking during treatment was associated with increased risk of diarrhea and colic.
Quitting smoking eliminated these risks to a large extent

(Alsadius et al, 2011)
Chemotherapy

✓ Altered metabolism and pharmacokinetics – lower response rates and higher risk of complications


✓ Impaired immune system - increased infections

✓ Aggravation of common side effects such as weight loss, cachexia, fatigue, lung - and cardiac toxicity

  Gritz et al 2007

Smoking affects the metabolism (mitochondrial signals/apoptosis/angiogenesis) and pharmacokinetics (Waller et al 2010).
Increased risk of secondary malignancy

✓ Smokers have a higher risk for developing secondary cancers


✓ Smoking combined with RT and chemotherapy may act in synergy and increase the risk of secondary cancer

  Boorjian et al (Ca prostata) 2007, Ford et al (Ca mammae) 2003, Travis et al (Hodgkins) 2002
Secondary cancer - some examples

✓ Patients with Hodgkin who smoked had a higher risk of developing lung cancer after chemotherapy and / or RT
  Travis et al 2002

✓ The same can be seen in survivors of breast cancer
  Ford et al 2003

✓ Retrospective study (n=29,795)
  59 % higher risk of all SC and
  102 % higher risk of smoking-related SC

  Tabuchi et al 2013
Smoking cessation is associated with:

- Improved treatment outcome
- Longer survival
- Less side effects
- Fewer infections
- Fewer hospital days
- Improved respiration and circulation
- Improved energy and quality of life

Diagnostic groups and smoking cessation - some examples

- Patients with **lung cancer** who stopped smoking after diagnosis had a reduced risk of mortality
  
  Chan et al 2010

- **Breast cancer** patients who stopped smoking had a reduced risk of developing a new primary breast cancer
  
  Li et al 2009
It is not enough to say; “You better quit smoking!” and leave the patient alone with the problem.

Patients calls for clear, formalized and fact based guidance and follow-up over time.

Patients want to be encouraged to quit smoking early in the course.

Hsu et al 2011, Dresler 2003

So - what do we do?
Identify the smoking habits

✓ To what extent, when during the day (degree of dependence), in what situations?

Motivate smokers to quit

✓ Inform that tobacco use will reduce the effectiveness of treatment and that the most important the patient can do is to stop using tobacco (smoking, snuff and chewing tobacco)

✓ Table 3: Advice to those who are not yet ready to quit

Counselling + smoking cessation drugs = true
Those who get professional help in combination with nicotine replacement therapy (NRT) are more likely to successfully quit smoking
To succeed

✓ Those who receive counselling in combination with smoking cessation drugs are more likely to successfully quit smoking

✓ Correct medicine and dose

✓ Combining different drugs or increasing the dose

✓ Swap medicines
Table 4: Measures based on motivation and nicotine addiction

<table>
<thead>
<tr>
<th>Motivation</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are you ready to quit smoking now?</td>
<td>Recommendations for low nicotine addiction</td>
<td>Recommendations for medium nicotine addiction</td>
<td>Recommendations for strong nicotine addiction</td>
</tr>
<tr>
<td><strong>YES</strong></td>
<td>Counselling; The benefits of quitting.</td>
<td>As on level 1</td>
<td>As on level 1 and 2.</td>
</tr>
<tr>
<td></td>
<td>Brochures for distribution: Patient information about smoking cessation</td>
<td>In addition; Recommend nicotine replacement therapy (NRT).</td>
<td>Consider higher doses of the NEP and optionally combine various drugs.</td>
</tr>
<tr>
<td></td>
<td>Referring to Quitline (tel: 800 400 85)</td>
<td>Brochures for distribution: Drugs for smoking cessation</td>
<td>Close monitoring.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Brochures for distribution: Drugs for smoking cessation</td>
</tr>
<tr>
<td><strong>NO</strong></td>
<td>Counselling; The benefits of quitting.</td>
<td>As on level 1</td>
<td>As on level 1 and 2.</td>
</tr>
<tr>
<td></td>
<td>Consider recommending NRT to reduce tobacco use</td>
<td></td>
<td>Address tobacco use and motivation at every visit / hospitalization</td>
</tr>
<tr>
<td></td>
<td>Brochures for distribution: Drugs by smoking cessation</td>
<td></td>
<td>Brochures for distribution: Drugs by smoking cessation</td>
</tr>
</tbody>
</table>
Smoking cessation drugs

**Nicotine replacement therapy (NRT)**
- Reduces withdrawal symptoms
- Transdermal patch, gum, lozenges, inhaler
- Mild side effects, available without prescription

**Varinecline**
- Makes you unable to enjoy nicotine
- Prescription is required

**Bupropion**
- Increases the ability to refrain from smoking
- Antidepressant
- Prescription is required
Table 5: Smoking cessation drugs

- Part 1: Nicotine replacement therapy (NRT)
- Part 2: Medication not containing nicotine
Quitline supervising

- Don’t have to be determined in advance of referral
- Professional counselling
- Confidentiality
- One year of follow-up
- Free of charge
Three main areas to improve the care of smokers with cancer

1. Telling the facts: the impact of smoking on the outcome of treatment to make it possible for patients to make informed choices about smoking

2. Providing guidance and encourage a safe and effective smoking cessation

3. Help prevent and reduce withdrawal symptoms
"I know something that can make the treatment work better and increases the chance of survival, but I think that it will be too difficult for you right now, so let's not discuss it ...."
Patient participation

✓ To quit smoking is an opportunity for patients with cancer to exert control over their health and life during a period of time when a sense of control are deeply challenged ...
Thank you for listening

“I’m so proud of you sweetie. You haven’t smoked for a week!”
Referanser


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