The risks of smoking in patients with spondyloarthritides

Jürgen Braun,1 Joachim Sieper,2 Angela Zink3

The smoking prevalence in Europe varies from 14% in Sweden to nearly 38% in Greece.1 In the USA it is now approximately 20%, with large differences between states and according to social class and ethnic background.2 The proportions of men and women smoking is rather variable, but the relative risk of cardiovascular diseases seems to be higher in women.3 Smoking prevalence decreases with higher educational level and higher family income. Smoking is a major risk factor for lung, cardiovascular and other diseases.4 5 Smokers double their risk of having a heart attack compared with non-smokers4 and many people die from diseases related to smoking.

The effects of nicotine, like those of other drugs with the potential for abuse and dependence, are centrally mediated. The impact of nicotine on the central nervous system is neuroregulatory in nature, affecting biochemical and physiological functions in a manner that reinforces drug-taking behaviour. Dose-dependent neurotransmitter and neuroendocrine effects occur as plasma nicotine levels rise when a cigarette is smoked.6 Smokers have increased blood cholesterol levels. Smoking may also stimulate the blood clotting system in the blood, and the cardiovascular risk in smoking women using contraceptives is increased.

Cardiovascular diseases occur more frequently in people with elevated C-reactive protein.7 The link between cardiovascular and rheumatic diseases is well established, and the increased mortality of patients with rheumatoid arthritis (RA)8 is caused by cardiovascular deaths. It was shown that mortality is significantly reduced by continuous therapy with methotrexate,9 by cardiovascular deaths. It was shown that the presence of anticitrullinated protein antibodies is a risk factor for developing RA—especially in men who smoke.10 Of interest, nicotine must be inhaled to confer risk—smokeless tobacco did not increase the risk of chronic inflammatory diseases.11 It is largely unclear how inhaled nicotine does this.

Two independent studies15 16 show an increased risk of smoking in patients with axial spondyloarthritis and psoriatic arthritis (PsA). Recently three independent studies15–17 have shown an increased risk of severe disease in patients with axial spondyloarthritis and psoriatic arthritis (PsA) who are or were smokers. The results of these studies point largely in the same direction but one recent study on PsA came to a different result.18 However, earlier studies19 had also reported an increased risk conferred by smoking. The cardiovascular risk profile of patients with ankylosing spondylitis (AS) has recently been described in a meta-analysis.20 Having spondyloarthritis was found strongly to predict early coronary artery bypass grafting.21 A number of studies has shown that smoking is associated with poor outcome in patients with established AS.22–26 For the first time, a clear negative effect of smoking is now reported in 647 patients with early inflammatory back pain and possible spondyloarthritis.15 In that study, smoking was associated with an earlier onset of back pain, higher disease activity, worse functional status and quality of life, more frequent inflammation of the sacroiliac joints and spine as assessed by MRI, and more frequent structural lesions of the sacroiliac joints and spine as assessed by radiographs using the modified SASSS. As those patients had a short disease duration not much damage had occurred as yet.

Smoking also has an unfavourable influence on other outcomes of rheumatic diseases, and more intensive therapy is required for RA patients who smoke.11 The interaction between genetic and environmental factors is of pathogenic importance for RA.12 The presence of anticitrullinated protein antibodies is a risk factor for developing RA—especially in men who smoke.13 Of interest, nicotine must be inhaled to confer risk—smokeless tobacco did not increase the risk of chronic inflammatory diseases.14 It is largely unclear how inhaled nicotine does this.

The benefits of quitting smoking begin as soon as an individual stops, and there are evaluated programmes to help give up smoking.31 However, the advantages of the cessation of smoking in patients with rheumatic diseases have not been prospectively assessed as yet.

Of note, in patients with Crohn’s disease cessation of smoking is thought to have an effect size similar to a medical intervention with azathioprine.32 Of interest, smoking causes opposing effects on ulcerative colitis and Crohn’s disease. The odds ratio of developing ulcerative colitis for smokers compared with lifetime non-smokers is thus 0.41, while smokers with Crohn’s disease have a more aggressive course of the disease.32

European League Against Rheumatism recommendations for cardiovascular risk management in patients with arthritis have recently been published.33 According to these the rheumatologist is in charge of identifying the risk of cardiovascular disease in patients with inflammatory rheumatic diseases. Who is in charge of treating that risk needs to be decided within each healthcare system. In any case, a close
cooperation between the general practitioner and the rheumatologist seems warranted to achieve best patient care.

Competing interests None.

Provenance and peer review Commissioned; externally peer reviewed.

Received 24 October 2011
Accepted 11 December 2011

REFERENCES


12. Westhoff G, Rau R, Zink A. Rheumatoid arthritis patients who smoke have a higher need for DMARDs and feel worse, but they do not have more joint damage than non-smokers of the same serological group. Rheumatology (Oxford) 2008;47:849–54.


The risks of smoking in patients with spondyloarthritides

Jürgen Braun, Joachim Sieper and Angela Zink

Ann Rheum Dis published online February 13, 2012

Updated information and services can be found at:
http://ard.bmj.com/content/early/2012/02/12/annrheumdis-2011-200954

References
This article cites 33 articles, 13 of which you can access for free at:
http://ard.bmj.com/content/early/2012/02/12/annrheumdis-2011-200954#BIBL

Email alerting service
Receive free email alerts when new articles cite this article. Sign up in the box at the top right corner of the online article.

Topic Collections
Articles on similar topics can be found in the following collections

- Connective tissue disease (4253)
- Musculoskeletal syndromes (4951)
- Epidemiology (1376)
- Degenerative joint disease (4641)
- Ankylosing spondylitis (417)
- Calcium and bone (725)
- Immunology (including allergy) (5144)
- Inflammation (1251)
- Pain (neurology) (883)
- Rheumatoid arthritis (3258)

Notes

To request permissions go to:
http://group.bmj.com/group/rights-licensing/permissions

To order reprints go to:
http://journals.bmj.com/cgi/reprintform

To subscribe to BMJ go to:
http://group.bmj.com/subscribe/