Smoking and surgery

The prevalence of smoking is decreasing but remains common: in 2014 17% of adults were current smokers compared to 50% in 1974 (Action on Smoking and Health, 2017). As smoking is conclusively harmful, acute care providers are advised to provide support and advice for smoking cessation (National Institute for Health and Care Excellence, 2013). Preoperative clinics offer an opportunity to modify patient behaviour before surgery.

What is the evidence?

Given that both smoking and surgery are common, it is surprising how little evidence is available to support the perioperative team and their patients.

Does smoking increase perioperative risk?

A systematic review of observational data compiled in 2014 identified that smoking was strongly associated with an increase in morbidity and mortality in the perioperative period. In particular, wound complications, general infections, pulmonary complications and neurological complications were all found to be more prevalent in patients who smoked (Grønkjaer et al, 2014). The adjusted relative risks varied from 1.3 to 2.5. Therefore, it is reasonable to tell patients that smoking doubles their chance of suffering an unwanted problem after their operation.

Does quitting reduce this risk?

The effects of smoking cessation on perioperative risk have not been well researched, but it is thought that pulmonary complications can be reduced with 4 weeks' cessation, and after 8 weeks' cessation the risk is similar to that of those who have never smoked (Wong et al, 2012a). Cessation of smoking before surgery has not been found to increase risk, as was the historical opinion.

How can perioperative clinicians help patients to quit?

Preoperative consultations should be considered as a 'teaching moment', representing a significant opportunity to influence patient behaviour. Clinicians can use the '5 As':

1. Ask about tobacco use
2. Advise to quit
3. Assess willingness to make an effort
4. Assist in quitting
5. Arrange follow up.

The NHS offers services to support this, including Smokefree (http://www.nhs.uk/smokefree) and Live Well (https://www.nhs.uk/live-well/quit-smoking/). A Cochrane review has shown intensive therapies to be very effective in the perioperative setting, if they are available (Thomsen et al, 2014).

Nicotine replacement therapy should be offered routinely by hospitals, including during inpatient admissions. Varenicline (Champix), a nicotine partial agonist, increases abstinence from smoking at 3, 6 and 12 months after surgery when given as a 12-week course starting 7 days before planned surgery (Wong et al, 2012b). Perioperative outcomes were not investigated in this trial. Bupropion (Zyban), a nicotine antagonist, has been shown to be similarly effective at facilitating abstinence but data are lacking in the perioperative setting. Patients should be advised to explore these alternative drug therapies with their GP.

What about casual smokers?

Another important patient group is the 'light' or 'social' smoker (less than 10 cigarettes per day), but this population has not been researched in the context of perioperative care. Cessation should still be advised but extrapolation of the risks and benefits is difficult.

Conclusions

Regular smokers can be advised that smoking doubles the risk of unwanted harm around the time of their operation, and at least 4 weeks' cessation (and ideally 8 weeks) will reduce this risk. Preoperative consultation is an ideal opportunity to ask patients about smoking and discuss cessation. In the preoperative period patients should routinely be offered nicotine replacement therapy and be encouraged to engage with existing NHS smoking cessation services. **BJHM**

Action on Smoking and Health. 2017. Smoking statistics. (accessed 6 July 2018) http://ash.org.uk/download/fag-smoking-statistics/

Grønkjær M, Eliasen M, Skov-Ettrup LS et al. Preoperative smoking status and postoperative complications: a systematic review and meta-analysis. Ann Surg. 2014 Jan;259(1):52–71. https://doi.org/10.1097/SLA.0b013e3182911913

National Institute for Health and Care Excellence. 2013. Smoking cessation in secondary care: acute, maternity and mental health services (PH48). (accessed 6 July 2018) https://www.nice.org.uk/guidance/ph48

Thomsen T, Villebro N, Møller AM. Interventions for preoperative smoking cessation. Cochrane Database Syst Rev. 2014 Mar 27;(3):CD002294. https://doi.org/10.1002/14651858.CD002294.pub4

Wong J, Lam DP, Abrishami A, Chan MTV, Chung F. Short-term preoperative smoking cessation and postoperative complications: a systematic review and meta-analysis. Can J Anaesth. 2012a Mar;59(3):268–279. https://doi.org/10.1007/s12630-011-9652-x

Wong J, Abrishami A, Yang Y et al. A perioperative smoking cessation intervention with varenicline: a double-blind, randomized, placebo-controlled trial. Anesthesiology. 2012b Oct;117(4):755–764. https://doi.org/10.1097/ALN.0b013e3182698b42

Further reading

Lee S. 2015. Smoking Cessation and Anesthesia. (accessed 18 August 2017) http://www.openanesthesia.org/smoking_cessation_and_anesthesia/

Thiagarajan N. 2011. Smoking and Anaesthesia – Anaesthesia Tutorial of the Week 221. (accessed 28 July 2017) http://www.frca.co.uk/Documents/221%20Smoking%20and%20Anaesthesia.pdf

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