

Smoking cessation and elective surgery: the cleanest cut

Smokers who undergo surgery have higher risks and are a greater burden on healthcare resources. Is it acceptable to give them lower priority on surgical waiting lists?

A WIDE RANGE OF ELECTIVE SURGICAL PROCEDURES should not be offered to smokers who do not try or do not succeed in quitting. There is no denying that this approach is controversial and overtly discriminatory, but it is also evidence-based. New concerns are not based on well-recognised cardiac and respiratory risks, but on increased risks of wound infection and the adverse complications that ensue. The extent of this evidence is such that it is no longer possible for surgeons and others in the healthcare system to ignore it.

What, then, is the evidence? Wound infection rates are higher in smokers than in non-smokers who have had joint replacement surgery,¹ breast reconstruction,² "face-lifts", and a variety of other plastic surgery procedures.³ For example, with breast reconstruction, abdominal-wall site necrosis is seen in 7.9% of current smokers compared with 1% of non-smokers, and mastectomy-flap necrosis in 7.7% of smokers compared with 1.5% of non-smokers.² Furthermore, after abdominoplasty, secondary surgery for dehiscence was necessary in 24% of smokers and 8.2% of non-smokers.⁴

In a randomised study examining smoking cessation intervention before joint replacement surgery, wound infection rates were reduced from 27% in continuing smokers to zero in those who quit smoking.¹ Reduction rather than cessation in smoking is inadequate.¹ Infection rates in parasacral incisions made to remove punch biopsy scars were reduced from 12% to 2% in those who abstained from smoking for 4 weeks, while, in the same study, wound ruptures occurred in 12% of smokers but in no non-smokers.⁵ The optimum period of smoking cessation is uncertain but it is probably at least 6 weeks. Periods of smoking cessation of less than 3 weeks before colorectal surgery are not associated with a benefit.⁶

The mechanism for the increased wound infection rate is not clear. Tobacco combustion produces more than 3000 products. Nicotine, the best known of these, is a potent vasoconstrictor and impairs revascularisation of bone.³ Reassuringly, nicotine replacement treatment, used to assist smoking cessation, does not increase infection rates in experimental incisions⁵ or after joint replacement surgery.¹ Of the many other combustion products, carbon monoxide decreases tissue oxygenation and a range of other compounds impair the microcirculation. In surgical wounds, there is relative hypoxia in smokers to an extent that is known to impair wound healing in animals.⁷

Wound infections are never trivial, but in certain clinical situations they can have particular, deleterious sequelae. Immediate breast reconstruction may be desirable for some patients after mastectomy. An infected prosthesis, or necrosis of a flap or tissue donor site, can delay important adjuvant chemotherapy or radiotherapy. Wound infection

after joint replacement surgery is associated with increased risk of infection in the prosthesis,⁸ delays in hospital discharge, increased time to effective rehabilitation and massively increased cost of hospital care.

The extent to which doctors seek, and the wider community provides, permission for discrimination is an issue for serious community debate. An essential part of a surgeon's role is to be selective in choosing who to operate on, and when, in line with current evidence. Policies and practices that flow from this may be regarded by the healthcare community as discriminating, but by smokers and the wider community as discriminatory.

Continuing smokers must accept that some risks are simply unacceptable given the intent of the surgery. To put the smoking-related risk in context in orthopaedic surgery, the adverse effect of failing to quit smoking is similar to that of omitting antibiotic prophylaxis.⁹ The risk of adverse outcomes from wound infections alone is clear enough evidence to suggest that aesthetic plastic surgery should not be offered to current smokers, and that surgery should be delayed for 6 weeks after cessation. Doing otherwise would be simply foolish.

Joint replacement surgery presents a different decision-making framework. Patients are likely to have had time to consider and address cessation of smoking. In relation to an individual, pain and limitation of mobility may be deemed sufficient to justify a procedure, despite an increased risk associated with continuing to smoke. However, public health systems are faced with overwhelming demand and must generate the greatest benefit from limited resources. If smokers, as a group, have a reversible factor that causes a longer hospital stay, incurs greater costs and leads to poorer outcomes, might it be reasonable to allocate them a lower priority? Given that the end of a joint replacement waiting list is likely never to be reached, allocating smokers a lower priority could be tantamount to an indefinite deferral of surgery for a smoker unable to quit.

A recent Victorian study found that less than 10% of smokers having day-stay surgery recalled being advised by their surgeon or general practitioner to quit smoking.¹⁰ Clearly the medical community needs to do better. The message to the wider community is this: continued smoking in the face of elective surgery increases the risk to the individual and stretches the already stretched healthcare resources and expenditure unnecessarily. The community has to decide whether this waste is justified. Critically, if discriminatory policies are implemented, they must be matched by a commitment to fully and effectively support smokers in quitting, which is an altogether different challenge. This applies particularly to smokers who are already socioeconomically disadvantaged and those with mental

illness. Failure to help these individuals risks exacerbating existing health and economic inequalities.

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