

Challenges of working in an inner city practice: illegal drug use and respiratory illness



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Along with cardiovascular disease and musculoskeletal problems, respiratory illness accounts for a large number of the consultations in general practice and, as a chronic disease, obstructive airways disease is a large percentage of illness worldwide.¹ While much of the cause of lung disease is due to smoking cigarettes, an additional, largely unquantified, candidate for progressive damage is inhalation of smoke and high temperature fumes from drugs such as cannabis, cocaine and heroin. The pyrogenic effect and the irritant tissue toxicity are often inseparable from the effect of tobacco as they often coexist, but there is undoubtedly an independent factor attributed to the drug use leading to adverse effects on respiratory function. At least one study has identified the increased risk of cannabis smoking compared with tobacco, estimating that smoking a cannabis 'joint' does 2.5–5 times the damage to lung function compared with one tobacco cigarette.²

Individual drugs such as cocaine sometimes have distinct pathological patterns and 'crack lung' seems to be an identifiable entity, whereas the pulmonary effects of other drugs are less specific in their manifestations of respiratory damage causing outflow obstruction and emphysema changes similar to other causes of lung damage. Acute effects of cannabis include increased wheeze and cough, but evidence for longer term damage is confounded by the additional effect of smoking. Several studies have failed to identify a close link with heavy cannabis and lung disease, although a New Zealand case-control study of lung cancer in 79 adults under the age of 55 years and 324 community controls found a dose-response relation between frequency of cannabis use and lung cancer risk.³

The reality, in general practice, is of complex multimorbidity in individuals with several risk factors. Smoking cigarettes with or without cannabis, inhaling heroin or cocaine fumes and existing in poor living conditions are likely to characterise much of the lung pathology in inner city practice.^{4–7} Trying to tease out individual effects is inevitably difficult, but not impossible, and for the purpose of interventions sometimes less relevant than recognising all risk factors as targets for preventative therapy.⁸ Many people who use

drugs do so in combination, adding to the complex presentations affecting several systems.

The use of cocaine in injectable form or the smoking of crack cocaine is often associated with heroin use leading to increased risk of complications. Stimulant use alongside heroin leads to increased use and multiple daily injecting, increasing the risk of bloodborne virus transmission and other infections and generally more chaotic drug use, increased crime and psychosocial problems.

'Crack lung' refers to an acute pulmonary syndrome that occurs following crack or freebase cocaine use and is characterised by chest pain, fever, shortness of breath and sometimes haemoptysis and respiratory failure. Onset may be within 2 days of cocaine use and there is usually a benefit from administration of steroids. X-ray changes are variable and are described as ground glass opacities, consolidation or 'crazy paving' pattern. Pneumothorax and pneumomediastinum have been described.

As well as the well-known nasal septal damage caused by nasal inhalation of cocaine, tracheal stenosis and damage to the tongue epiglottis and sinuses can occur.

Among the conclusions must be that there is strong evidence for the damage caused to the respiratory system by smoking drugs such as heroin, cannabis and cocaine. Short-term effects may well be dose-related, causing acute episodes of lung damage or cumulative over many years of inhalation.⁹ Interactions with other drugs complicate the clarity of making a distinct diagnosis or linking cause and effect. Specific risks are identifiable as, for example, in the potential interactions of some selective serotonin reuptake inhibitors and cocaine.¹⁰

Interventions are often in the form of psychosocial treatments, and referral to specific agencies such as Narcotics Anonymous (<http://ukna.org/>) and Cocaine Anonymous (<https://cocaineanonymous.org.uk/>) are useful. Occasionally, acute crises can be only treated in hospital.

In general, there is a paucity of research on the lung effects of drugs such as cocaine, heroin and cannabis.

Several issues should be considered when confronted with the possibility of respiratory complications of drug use:

- Consider the toxic respiratory effects in any person using drugs by inhalation
- Several different drugs are often used interchangeably and different modalities may be present
- Behavioural problems and unexplained respiratory symptoms may be explained by cryptic drug use
- Respiratory effects of drug inhalation may be acute, requiring immediate interventions, or chronic and cumulative needing longer term behavioural treatment options
- Cocaine use is increasing in the UK, as are the number of deaths each year attributable to its ingestion
- Cigarette smoking is a relapsing condition often requiring multiple repeated interventions
- Unexplained acute breathlessness, haemoptysis or pulmonary oedema in a younger person with no history of asthma, allergy or sign of pulmonary embolus

This, as has already been stated, is due to the confounding effect of tobacco or multiple drug use and the difficulty of quantifying drug intake and symptoms over time. There is an important absence of longitudinal studies.

Inner city practice in the UK faces some distinct problems. Some of these are practical and impact on organisation and management as much as creating demands on clinical values. Homelessness, disengagement, defaulted appointments and multiple complex family and social conditions and financial constraints all place pressure on services requiring support and liaison with social work, advocacy agencies and a wide variety of third sector organisations. Many inherently non-medical situations lead to premature degenerative illness and morbidity, increasing the consultation rate on a younger age range than in more economically supported areas. Add into this toxic mix drugs and alcohol dependency and the morbidity and mortality rate escalates rapidly.^{11,12}

The complexity of many situations is hard to quantify clearly and proposed solutions and interventions have to take into account intergenerational damage, social inequalities and harms caused by constantly changing behaviours. Governments and institutions such as the health, social care and educational organisations seem, at times, powerless to prevent problems and consequently manage by treating the symptoms of dysfunction in a sector of the population. Firefighting in Accident and Emergency departments and, increasingly, in front-line schools and primary care departments has become a familiar feature.

Primary care and general practice has a history of innovation and experimentation. Ambitious targets to improve the estate of general practice are an essential part of future planning. Without adequate infrastructure, building suitable establishments to deliver the diverse requirements in communities, progress is impossible. Liaison and co-location of health and social care has been shown to help, and sharing responsibilities across statutory and third sector is undoubtedly the aspiration for the next phase.

How can primary care workers identify at-risk patients and where can they can go for support?

- The smell of tobacco or cannabis smoke and its residue on clothes or in the home you visit is a clinical sign. See the NCSCT Secondhand Smoke (SHS) film that shows how you might raise this.
http://elearning.ncsct.co.uk/shs_vba-stage_1
- A young person <45 with COPD is unusual. You may need to consider more than tobacco treatment interventions. Is it just tobacco that you smoke?
- Evidence for treating cannabis with tobacco dependency is limited. Treat the tobacco dependency according to NICE guidance. There is some evidence that cognitive behavioural therapy is helpful for the cannabis part of the dependency. There is no evidence that stop smoking drugs have an impact on cannabis dependency.
- Speak with your local mental health teams to see if dual (Mental Illness and Substance Misuse) clinics are available for you to refer your patient.

For people using drugs and having problems with alcohol this diverse culture of care and interventions is essential. National policy has been shown to respond to crises as they arise, and predicting the next wave of drug problems is notoriously difficult.^{13,14} Adequate capacity and flexibility is the only way to manage the inevitability of new, unexpected, challenges.

References

1. Mathers CD, Lopez AD, Murray CJL. The burden of disease and mortality by condition: data, methods, and results for 2001. In: Lopez AD, Mathers CD, Ezzati M, *et al*, eds. *Global Burden of Disease and Risk Factors*. Washington: The International Bank for Reconstruction and Development/The World Bank. 2006, Chapter 3. Co-published by Oxford University Press, New York. <https://www.ncbi.nlm.nih.gov/books/NBK11808/>
2. Aldington S, Williams M, Nowitz M, *et al*. Effects of cannabis on pulmonary structure, function and symptoms. *Thorax* 2007;**62**:1058–63. <https://doi.org/10.1136/thx.2006.077081>
3. Aldington S, Harwood M, Cox B, *et al*. Cannabis use and risk of lung cancer: a case-control study. *Eur Respir J* 2008;**31**:280–6. <https://doi.org/10.1183/09031936.00065707>
4. Tashkin DP, Khalsa ME, Gorelick D, *et al*. Pulmonary status of habitual cocaine smokers. *Am Rev Respir Dis* 1992;**145**:92–100. <https://doi.org/10.1164/ajrcm/145.1.92>
5. Benson MK, Bentley AM. Lung disease induced by drug addiction. *Thorax* 1995;**50**:1125–7. <https://doi.org/10.1136/thx.50.11.1125>
6. Hassanally K, Asaria M. Homeless mortality data from East London. *London Journal of Primary Care* 2018. <https://doi.org/10.1080/17571472.2018.1458443>
7. Royal College of Physicians of London. *Homelessness and ill health*. Report of a Working Party of the Royal College of Physicians. London: Royal College of Physicians, 1994.
8. Macleod J, Robertson R, Copeland L, McKenzie J, Elton R, Reid P. Cannabis, tobacco smoking, and lung function: a cross-sectional observational study in a general practice population. *Br J Gen Pract* 2015;**65**:e89–e95. <https://doi.org/10.3399/bjgp15X683521>
9. Taylor R, Fergusson D, Milne B, *et al*. A longitudinal study of the effects of tobacco and cannabis exposure on lung function in young adults. *Addiction* 2002;**97**:1055–61.
10. MHRA Drug Safety Update, Volume 9, Issue 12, July 2016. www.gov.uk/drug-safetyupdate/citalopram-suspected-drug-interaction-with-cocaine-prescribers-should-consider-enquiring-about-illicit-drug-use
11. Minton J, Shaw R, Green MA, *et al*. Visualising and quantifying 'excess deaths' in Scotland compared with the rest of the UK and the rest of Western Europe. *J Epidemiol Community Health* 2017;**71**:461–7. <https://doi.org/10.1136/jech-2016-207379>
12. Gov.uk. Reducing opioid-related deaths in the UK. Report from the Advisory Council on the Misuse of Drugs, December 2016. <https://www.gov.uk/government/publications/reducing-oid-related-deaths-in-the-uk>
13. Kalk NJ, Robertson JR, Kidd B, *et al*. Treatment and intervention for opiate dependence in the United Kingdom: lessons from triumph and failure. *Eur J Criminal Policy Res* 2018;**24**:183–200. <https://doi.org/10.1007/s10610-017-9364-z>
14. Department of Health Independent Expert Working Group. *Drug misuse and dependence: UK guidelines on clinical management*. London: Department of Health, 2017. <https://www.gov.uk/government/publications/drug-misuse-and-dependence-uk-guidelines-on-clinical-management>