

Cocaine use in sinonasal surgery: patients' perspective on its use and the need for pre-operative consent

Authors

1. Justin Jui Yuan Yeo¹
2. Sharifah Sara Syed Badrol^{1,2}
3. Amandeep Maan¹
4. Jacqueline Chan^{1,2}
5. James Barraclough¹
6. Suzanne Jervis²

Affiliations

1. Department of ENT. Russell Halls Hospital. The Dudley Group NHS Foundation Trust.
Pensnett Road, Dudley. DY1 2HQ. United Kingdom
2. Department of ENT. Princess Royal Hospital. Shrewsbury and Telford Hospital NHS
Trust. Apley Castle, Telford. TF1 6TF. United Kingdom

Corresponding author

Mr Justin Yeo

Russells Hall Hospital

Pensnett Road

DY1 2HQ

United Kingdom

Email: justinjuiyuanyeo@hotmail.com

Tel: 01384456111

Abstract

Introduction

Intranasal cocaine is commonly used in endoscopic sinus surgery due to its vasoconstrictive and anaesthetic properties. We aim to understand patients' perspectives and whether we should consent patients to its use.

Method

Prospective data was collected over a three-month period in ENT departments in the outpatient setting of 2 district general hospitals. An anonymous questionnaire was distributed to all adult patients exploring their thoughts on cocaine use in sinonasal surgery and the need for perioperative discussion.

Results

123 patients questionnaires were analyzed. 9.8% of patients knew of cocaine use in sinonasal surgery. 73.2% of patients stated they would like a pre-operative discussion on cocaine use before surgery. 83.1% of patients raised concerns over cocaine's illicit status, mainly its effect on work and driving. Only 34% mentioned they would prefer an alternative.

Conclusion

Patients want to know if and when cocaine is being used intraoperatively without necessarily objecting to it.

Key words

Informed consent; anaesthesia; endoscopic sinus surgery

Introduction

Intranasal cocaine use has traditionally been a popular choice for otolaryngologists carrying out endoscopic sinus surgery (ESS) due to its dual effect of vasoconstriction and anaesthesia. However, cocaine's drug side effect profile is significant, with the potential to cause a spectrum of pathology including inflammation of nasal mucosa, crusting and subsequent destruction of nasal, palatal and pharyngeal tissues.ⁱ Systemic side effects include myocardial ischaemia, arrhythmias, hypertension, loss of thermal regulation, seizures and ultimately death.ⁱⁱ

In the last century, cocaine has become more popular for its widespread abuse due to its side effect of excited delirium, leading to the negative social stigma associated with it.^{iii-iv} Moreover, alternatives to cocaine without its abuse potential have been developed, with some showing no difference in the quality of vasoconstriction obtained as compared to cocaine.^{v-vi} Although there has been a shift in decongestant choice for clinicians to avoid cocaine, its use has not completely fallen out of favour.^{vii} Because intranasal cocaine is used most commonly for patients undergoing ESS under general anaesthesia, its use during the procedure is rarely explained to them which may be argued as "uninformed" consent.

The aim of this study was to understand patients' perspectives towards the use of cocaine, whether we should consent patients to its use and ultimately, to evaluate whether cocaine should remain in an ENT surgeon's repertoire.

Methodology

A prospective study was performed over a three-month period in the Ear, Nose and Throat (ENT) Departments based in 2 separate district general hospitals: the Princess Royal Hospital, Telford and Russells Hall Hospital, Dudley. A questionnaire (***Supplementary 1***) was designed and distributed to all adult patients presenting to the ENT Outpatients department for a clinician appointment in that period. There were no exclusion criteria apart from age and completion of questionnaire was anonymous and voluntary. The questionnaire consists of a total of 13 questions and included information on age, sex, ethnicity, co-morbidities, previous drug abuse and questions exploring their thoughts on cocaine use in sinonasal surgery and the need for perioperative discussion.

Results

A total of 123 patient questionnaires were completed by the two sites and included in the analysis of this study; 102 from Russell's Hall Hospital, Dudley and 21 from Princess Royal Hospital, Telford. The proportion of male to female participants were 32.5% and 66.7%; with 1 participant who chose not to disclose their gender. There was rather equal distribution of age amongst the patient group as illustrated in **Figure 1** however 87% of the participants were of White/ Caucasian ethnicity leaving the remaining participants to be from the Asian and Afro-Caribbean background (7.3% and 5.7%).

The proportion of patients who knew of cocaine use in sinus surgery was 9.8%. The overall rate of patients (n=90) who would prefer to have perioperative discussion on cocaine use in surgery is 73.2%. 81.3% of these patients would like for this to happen pre-operatively in the outpatient setting. 10 patients reported previous history of illicit drug use and 70% of them would also prefer for the use of cocaine to be discussed with them perioperatively. **Figure 2** shows the distribution of the concerns raised by the patients on medical cocaine use (n=77) with most being worried about the illicit status of the drug (83.1%, n=64). The range of issues that patients raised in this questionnaire as their concerns and points for clarification include its impact on drug testing at work and driving, the possibility of use leading to addiction, potential side effects and interactions with other regular medications. Just over a third of patients (34%) also mentioned that they would prefer an alternative agent being used should there be an appropriate option instead of cocaine. 10% of patients also reported that they would be unhappy should cocaine be used without prior knowledge.

Discussion

In the UK, the general medical council (GMC) sets up guidance for clinicians with seven principles for decision making and consent, which involves helping patients make informed decisions by listening, exchange meaningful dialogue and supporting them in making their decision.^{viii} Our results suggest that the majority of patients would like to be informed if cocaine was used on them. Clinicians should consider making discussions regarding medical cocaine use routine in their daily practice, to help support patients in making an informed choice. This is further strengthened by the availability of other alternative topical vasoconstrictors that could be used to replace cocaine's effect include adrenaline, phenylephrine and oxymetazoline. These agents can be used in combination with local anaesthetic agents such as lidocaine, levobupivacaine or tetracaine; thus providing the dual-effect that has made medical cocaine's use popular.^{ix} In our centre, cocaine is most commonly used as part of Moffett's solution which is made out of a mixture of 1-2ml 5% cocaine, 1ml 1:1000 adrenaline, 2ml of sodium bicarbonate (based on surgeon's preference) and made up to 10ml with 0.9% sodium chloride. Moffett's solution is best known for its profound vasoconstrictive effect, originally used by Major Arthur James Moffett who published his work back in 1942. However, its controversy for use lies in the theoretically argument that one drug in the mixture increases the toxicity of the other.^x

There is an argument that the issue regarding informed choice of using medical cocaine lies more with the social stigma and its unlawfulness. The biggest concern identified from our study from patients was the illicit status of the drug (n=64), much more than its side effects (n=5). A possible explanation for this could be the information asymmetry that may have arisen from the 'routine' use of medical cocaine. The lack of insight regarding its use may be a cause for dissatisfaction which can be addressed by a simple conversation between clinician and patient. Unfortunately, our data does not capture the reasoning as to why patients are concerned about its illicit status despite its legitimate medical usage. Perhaps there is a concern that cocaine's medical necessity is a contributing factor to its illegal distribution.

Interestingly, there was also a small number of patients who raised concern regarding detectability of cocaine in the bloodstream post surgery and how this could affect drug testing be it for work or driving reasons. A small study in Australia^{xi} investigating the bioavailability of intranasally administered cocaine post endoscopic sinus surgery found that the peak plasma concentration of cocaine occurs at 2-6 hours post surgery (range 13-31 micrograms/L) and was undetectable at 12 hours. However, the levels of cocaine degradation product benzoylecgonine, was still detectable at 12 hours (mean 51.7 micrograms/L). As the legal cut-offs for driving in the UK are 10ug/L for cocaine and 50ug/L for benzoylecgonine^{xii}, this proves an important point to discuss peri-operatively in addition to providing patients with written information on discharge to support any need for proof at work or on driving.

One of the limitations of our study is the uneven demographics of the study population. The majority of our patients were Caucasian females. Another is that patients' perspectives were only captured in the outpatient setting. These 2 factors are important in understanding patients' healthcare-related expectations. A person's immediate health status (a spectrum of how ill a patient is), cultural background, economic status and social psychology all play an important role in setting their healthcare-related expectations. Perhaps the introduction of a questionnaire has introduced an active expectation to patients that was previously unsought. Lakin K et al discussed how an analytical approach can allow practitioners to consider how people's social location can affect their expectations of healthcare.^{xiii}

As an invalidated questionnaire was used, this study would have been more prone to responder bias. Another important factor is that patients who filled in these questionnaires were not attending a rhinology clinic specifically. Their presenting complaint could have been due to pathology not requiring any nasal intervention, which would increase the risk of the study being exposed to nonresponse bias.

On completion of the study, there was a clear disparity in the number of participants from the patient group in one setting (Princess Royal Hospital, Telford) than that in Dudley (21 vs 102). Anecdotal reports from outpatient staff suggested that there was reluctance in completing the questionnaire and as to not coerce the patients into completing the questionnaire, we did not explore the reasonings behind this observed hesitancy. This may be an avenue to explore in future to understand further the social and geographical factors impacting patients perception on medical use of cocaine.

What is already known

- Intranasal cocaine is a popular choice for otolaryngologists carrying out sinonasal surgery due to its dual effect of vasoconstriction and anaesthesia
- The side effect profile of cocaine is significant
- Cocaine is illegal in most countries, because of its abuse potential due to the side effect of excited delirium

What this paper adds

- Patients are largely unaware that cocaine is being used in sinonasal surgery
- The majority of patients would prefer to be told about its use perioperatively and would like a discussion about it, mostly in the pre-operative outpatient setting
- The biggest concern that patients have is the illicit nature of the drug and the impact this may have on drug testing at work or when driving

Conclusion

This study demonstrates that patients do want to know if and when cocaine is being considered for use intraoperatively without necessarily objecting to it. Modernizing the consent process with inclusion of preoperative discussion of its use would therefore provide the opportunity to address any misconceptions and stigma attached to the substance, help improve surgeon-patient relationship and potentially lead to fewer future medico-legal implications.

Funding

This research received no specific grant from any funding agency, commercial or not-for-profit sectors

Conflict of interest

The authors declare that there is no conflict of interest

Acknowledgements

Nil

References

- ⁱ Wang SH, Wang HW, Wang JY. Effects of cocaine on human nasal mucosa. *Eur Arch Otorhinolaryngol* 1993;250:245-248
- ⁱⁱ Campbell BG. Cocaine abuse with hyperthermia, seizures and fatal complications. *4Med J Aust* 1988;149:387-389
- ⁱⁱⁱ Karch SB. Cocaine: history, use, abuse. *J R Soc Med* 1999;92:393-397
- ^{iv} Bard ND, Antunes B, Roos CM, Olschowsky A, de Pinho LB. Stigma and prejudice: the experience of crack users. *Rev Lat Am Enfermagem* 2016;24:e2680
- ^v Alhaddad ST, Khanna AK, Mascha EJ, Abdelmalak BB. Phenylephrine as an alternative to cocaine for nasal vasoconstriction before nasal surgery: A randomised trial. *Indian J Anaesth* 2013;57:163-169
- ^{vi} Kasemsuwan L, Griffiths MV. Lignocaine with adrenaline: is it as effective as cocaine in rhinological practice? *Clin Otolaryngol Allied Sci* 1996;21:127-129
- ^{vii} Long H, Greller H, Mercurio-Zappala M, Nelson LS, Hoffman RS. Medicinal use of cocaine: a shifting paradigm over 25 years. *Laryngoscope* 2004;114:1625-1629
- ^{viii} General Medical Council. Decision making and consent. 2020. Available at: <https://www.gmc-uk.org/ethical-guidance/ethical-guidance-for-doctors/decision-making-and-consent> (accessed 31 July 2023)
- ^{ix} Murdoch I, Surda P, Nguyen-Lu N. Anaesthesia for rhinological surgery. *BJA Educ* 2021;21:225-231
- ^x Benjamin E, Wong DKK, Choa D. Moffett's' solution: A review of the evidence and scientific basis for the topical preparation of the nose. *Clin Otolaryngol Allied Sci* 2005;29:582-587

^{xi} Page DE, Rimmer J, Keane M, Manikappa S, Butzbach D, Giddings C. Is atomised intranasal cocaine systemically absorbed during endoscopic sinus surgery? *Rhinology* 2019;57:200-205

^{xii} Great Britain. Department of transport. Drink and drug driving law. 2017. Available at: <https://www.gov.uk/government/collections/drug-driving> (accessed 31 August 2023)

^{xiii} Lakin K, Kane S. Peoples' expectations of healthcare: A conceptual review and proposed analytical framework. *Soc Sci Med* 2022;292:114636