Nicotine & Tobacco Research, 2017, 1–3
doi:10.1093/ntr/ntx029
Letters
Received August 22, 2016; Editorial Decision January 19, 2017; Accepted January 22, 2017

Letters

Clinical Effectiveness of Dual Nicotine Replacement Therapy in Planned Hospital Admissions to an Epilepsy Monitoring Unit: An Irish Perspective

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Introduction

In Ireland, where the overall prevalence of cigarette smoking is estimated at 19.5%,[1] the standard of care for nicotine replacement therapy (NRT) has traditionally been monotherapy in the form of prolonged-release transdermal nicotine patches.

In keeping with international evidence-based best practice,[2–5] recent guidelines from the Irish Health Service Executive[6] advise the use of dual NRT (ie, a nicotine patch combined with an immediate-release nicotine preparation for relief from breakthrough cravings). The systematic implementation of these guidelines nationally has not yet occurred and it is widely acknowledged that the usual standard of prescribing NRT monotherapy prevails.

Although the underlying reasons are not clear, and existing prevalence studies are difficult to compare for methodological reasons, smoking is believed to be more common among people with epilepsy than the general population.[7,8] A study in French-speaking Switzerland, for example, found 32.1% of people with epilepsy in a selected cohort were daily smokers, while the prevalence of smoking in the general population in the same region was estimated at 19%.[7]

Hospitalization is recognized as a potential opportunity for smoking cessation interventions.[9] In-patient video-electroencephalography (EEG) monitoring on an epilepsy monitoring unit (EMU) can be performed to distinguish epileptic seizures from seizure mimics, to better characterize epileptic seizures in cases of known epilepsy and as part of the evaluation process prior to respective epilepsy surgery. EMU admission involves continuous recording from scalp electrodes and video cameras for days at a time, with cumulative seizure-provocation measures employed to induce events in a closely observed, controlled and safe environment. All seizure data is highly valuable.

Clinical practices vary between EMUs. In order to aid tolerability of the monitoring process, some EMUs permit patients to leave for smoking breaks during their hospital stay. However, this may lead to missed seizures or suboptimal recordings, and can be associated with increased length of EMU stay, as demonstrated by a study of smoking breaks on a Canadian EMU which found that those who smoked had almost four times more missed seizures and stayed on average 1.5 days longer than nonsmokers.[10] Some EMUs which accommodate smoking breaks transfer patients temporarily to portable EEG equipment (without video recording) but such EEG traces tend to contain more muscle artifact that can obscure clinically useful information and, in the absence of video, render the captured seizure uninterpretable. Of greatest concern is that leaving the controlled and closely-observed environment of the EMU to smoke in an unsupervised area with multiple potential hazards in the context of drug withdrawal and sleep deprivation—methods routinely used to induce seizures—places patients at increased risk of injury and death.[11]

Cork University Hospital, a tertiary epilepsy centre in the Republic of Ireland serving a population of approximately 1.1 million people, opened its EMU in January 2015 and now provides two of the six national EMU beds. EMU admissions are typically planned months in advance and last for up to 7 days. To optimize patient safety and the diagnostic yield, the unit has a policy requiring all patients to remain on the EMU throughout the entire monitoring period, with direct nurse observation 24 hours per day. Accordingly, if a patient were to leave the EMU for any reason, including smoking, monitoring would be terminated and they would be discharged from hospital. As a consequence of these physical restrictions on patients, total abstinence from smoking is imposed until discharge. In order to aid patient concordance insofar as possible, the EMU team intentionally diverged from the NRT monotherapy approach employed elsewhere and—with the express authorization of the hospital pharmacy—adopted the use of dual NRT from the outset.

We sought to assess the clinical effectiveness of dual NRT use in preventing smoking during planned admissions to the EMU for video-EEG monitoring.

Methods

A retrospective analysis of medical charts, nursing charts and clinical coding records for all patients who underwent elective video-EEG

monitoring on the EMU at Cork University Hospital in the first 18 months of opening (January 2015 to June 2016) was undertaken. Information captured included pre-admission smoking status, NRT prescription, duration of video-EEG monitoring and any excursions from the EMU to smoke.

The requirement to totally abstain from smoking during the period of continuous monitoring and the advice to seek smoking cessation support from a general practitioner in advance was outlined to all patients in pre-admission phone-calls and in information leaflets sent by post. On arrival at the EMU, smoking status was determined by asking patients if they currently smoked and dual NRT was prescribed for all smokers from this point onwards in the form of regular transdermal nicotine patches and a nicotine inhaler (15 mg) as needed for cigarette cravings. Patients who reported smoking 10 or more cigarettes per day were prescribed 25 mg nicotine patches and those who reported smoking less were prescribed 15 mg patches. No additional smoking cessation assistance was provided.

Results

One hundred three patients underwent video-EEG monitoring during the study period and all were included—63 (61.2%) were female and the mean age was 37 years (range 17–71, mode 38, median 35). The mean duration of video-EEG monitoring was 7 days (range 3–14, mode 7, median 7).

A total of 24 (23.3%) patients were smokers—up to the point of EMU admission, all were either smoking or taking general practitioner-prescribed NRT. For the duration of video-EEG monitoring, all smokers were prescribed dual NRT as transdermal nicotine patches (25 mg or 15 mg) and a nicotine inhaler (15 mg) as required. No other forms of NRT were available from the hospital pharmacy and no patients used their own NRT supply.

No patients smoked during video-EEG monitoring and recording was not discontinued early to facilitate smoking on any occasion.

Discussion

In this cohort there was 100% clinical effectiveness of dual NRT in achieving smoke-free hospitalization days. We believe this is the first study to assess dual NRT effectiveness among patients during planned hospital admissions in Ireland and the first to assess dual NRT effectiveness specifically in an EMU setting.

The EMU patients are so closely observed that the 100% rate of smoke-free hospitalization days during video-EEG monitoring can be confirmed with certainty. No adverse events attributable to NRT occurred and concurrent continuous cardiac monitoring did not reveal any dysrhythmias, providing encouraging safety data. There is a higher prevalence of smoking in this group of patients compared to the general population. Given that many of them had active epilepsy, this could possibly contribute to the increased mortality rates in people with epilepsy.

Until very recently, video-EEG monitoring was an investigative tool with exceptionally limited availability in Ireland, even though the data generated is often key to improving patient outcomes. A selection bias could arguably exist, in that EMU patients could be deemed to have significant incentive to adhere to the nonsmoking policy compared to other hospital in-patients—they are usually aware that the EMU is a specialized resource with waiting times from referral to admission of over 1 year, meaning that monitoring could not be readily re-scheduled if it were abandoned for smoking (or any other reason). In addition, the constant presence of a nurse on the EMU may have helped to prevent patients from leaving to smoke. As our unit prescribed dual NRT for all smokers since opening, we do not have a baseline estimate or a control group consisting of patients prescribed NRT monotherapy or no NRT for comparison, and such data from other EMUs has not, to our knowledge, been published—this limits the ability to assess the clinical effectiveness of NRT in our study. Although the EMU team's reported experience is that all patients offered NRT opted to use it, it is not possible to retrospectively verify this or to confirm that those who used NRT took advantage of both inhalers and patches. It may be that some patients did not report an accurate number of cigarettes smoked per day and so the prescribed dose of NRT may not have been correct or adequate.

Nevertheless, this study supports the use of dual NRT for elective in-patient admissions and a similar approach could be trialed across public hospitals in Ireland for acute admissions. A period of abstinence from smoking during a hospital stay presents an opportunity for achieving long-term smoking cessation and consideration for the provision of appropriate support and follow-up after hospital discharge to avoid squandering such an opportunity is warranted. Availability of a wider range of NRT products to facilitate individual preference, in addition to referring for psychosocial smoking cessation treatment, may encourage longer term abstinence. Future EMU-based studies could compare dual NRT to monotherapy, and assess outcomes such as mood and wellbeing, withdrawal symptoms and return-to-smoking after hospital discharge. Questionnaires could be used to explore which factors motivate and help patients to abstain from smoking, and whether an EMU admission can promote consideration of long-term smoking cessation.

Funding

None declared.

Declaration of Interests

None declared.

Acknowledgments

We thank the following colleagues at Cork University Hospital for their assistance with accessing records: Maria Harrington (HIPE coordinator), Siobhan O'Rourke (Clerical Officer, Medical Records) and David Shortland, (Clerical Officer, Services Department).

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