Effective Interventions Unit
Evaluation of the provision of single use citric acid sachets to injecting drug users: SUMMARY

Introduction

The majority of injecting drug users (IDUs) who use needle exchanges in the UK are heroin injectors. While heroin in its purest form is highly water soluble, street heroin in the UK tends to be brown and is sold in poorly soluble base form (King, 1997). In order to make the heroin base soluble, an acid must be added to convert it into a salt. Acids that can be used to facilitate solubility in this way include citric, ascorbic, acetic and lactic acids. IDUs have tended to use readily available forms of these acids such as commercial brands of processed lemon juice, fresh lemon juice, vinegar and other household products. Although these products are used to promote solubility and thereby reduce the risk of harm caused by injecting particles, they are in fact often a source of harm themselves.

Citric acid is believed to be the safest acidifier to use for the preparation of brown heroin for injection, as it is readily available in pure form, is of consistent strength and complies with the British Pharmacopoeia (BP) standard (Preston & Derricott, 2002). However, until recently, supplying citric acid to IDUs remained, in principle at least, illegal by virtue of Section 9A of the Misuse of Drugs Act 1971. Even with this legislation intact, no one has ever been prosecuted for supplying citric (or ascorbic) acid. This is perhaps because prosecution for harm reduction initiatives would not be in the public interest. Despite this, some pharmacists' concerns about the, albeit very low, risks of prosecution had, until recently, made them reluctant to supply it. This had made it very difficult for IDUs to obtain citric acid and had resulted in their use of more dangerous acidifiers.

Acting on behalf of the Greater Glasgow Drug Action Team (DAT), and in a bid to reduce concerns and reassure pharmacists, the Regional Procurator Fiscal (RPF) approached the Lord Advocate's department about the supply of citric acid sachets to IDUs. In response, the Lord Advocate advised that under no circumstances would pharmacists supplying citric acid as part of an approved needle exchange programme be prosecuted. The three RPFs responsible for Greater Glasgow NHS Board and Lanarkshire NHS Board areas provided "letters of comfort" which were forwarded to all pharmacists to further reassure them.

There then followed a short pilot study of supplying IDUs attending needle exchanges with 200mg sachets of citric acid. This trial highlighted that while IDUs liked the idea of single use sachets, 200mg was excessive in terms of the amount of citric acid needed for each injection. Indeed, 100mg of citric acid was found to be more than sufficient to dissolve the £20 worth of heroin usually injected. 100mg is also the smallest amount of citric that can be feasibly packaged in single sachets and is therefore the safest option possible. As a result of this research, in December 2001 pharmacy exchanges in Greater Glasgow started offering 100mg single use sachets of citric acid to IDUs and, in March 2002, pharmacy and needle exchanges in Lanarkshire followed suit. This provision was introduced with the support of Greater Glasgow and Lanarkshire DATs, the Home Office, Strathclyde Police, Greater Glasgow Primary Care Trust and the Royal Pharmaceutical Society in Scotland.

The 100mg single use citric acid sachets provided are manufactured and packed in surroundings that comply with the pharmaceutical industry standards of Good Manufacturing Practice (GMP). The sachets themselves are made from a combination of paper, plastic and aluminium foil, which ensures they remain airtight, water resistant and free from contamination.

As the sachets are designed for single use, they decrease the risk of contamination from sharing between IDUs and encourage hygienic injecting techniques. In addition, it is hoped that providing

citric acid sachets in this way will increase both the number of people attending and the number of visits to the needle exchange. Despite these clear benefits, citric acid, like all acidifiers, is not designed for injecting and can lead to vein damage. It is therefore important that the smallest possible amount is used. Text on the exterior of the sachets advises IDUs to use as little citric as possible and to discard whatever remains. Each sachet carries the warning that injecting citric acid can damage veins. This information and further injecting advice is offered to IDUs on the small flyer supplied with the sachets and on the box in which the sachets are sometimes supplied to users.

While the provision of citric acid sachets in the UK is relatively new, a similar service has been available in some European countries for some time now. There it has increased the use of needle exchange services, reduced the use of more dangerous acidifiers, been popular with IDUs and improved their relationship with needle exchange staff (Preston & Derricott, 2002). A small pilot study carried out by the Hungerford Mobile Exchange Team in London has also produced positive results (Wilkinson, 2002).

The Effective Interventions Unit, Greater Glasgow Primary Care NHS Trust and Lanarkshire Primary Care NHS Trust jointly provided the funding necessary to determine if the provision of citric acid is as successful in Greater Glasgow and Lanarkshire as it was in London.

Aim and objectives

The study aimed to assess the acceptability, effectiveness and efficiency of the provision of 100mg single use sachets of citric acid to injecting drug users. The objectives were to assess:

- If the amount of citric acid is sufficient to dissolve the amount of heroin used per injection.
- If the provision of one sachet per one needle/syringe is adequate for the needs of injectors.
- The number of citric burns experienced using the sachets.
- If the uptake of needles/syringes from exchanges has increased since the introduction of the sachets.

Methods

Two pharmacy exchanges in Greater Glasgow, two pharmacy exchanges in Lanarkshire and two fixed site needle exchanges in Lanarkshire agreed to take part in the study. Three hundred and sixty injecting drug users who attended these needle exchanges were recruited to the study between August and November 2002. One hundred and twenty participants were from the Lanarkshire NHS Board area and 240 were from the Greater Glasgow NHS Board area. This sample represents 10% of all injectors who attended needle exchanges in Lanarkshire in August 2001 and 5% of all contacts to Glasgow pharmacies per month over the period September 2000 to March 2001. The number of individuals using Glasgow pharmacies was not available at the time this study was undertaken. However, a recent project also funded by the EIU has included building a database for pharmacy needle exchange data in Glasgow.

The data were collected using a structured questionnaire. This was split into two sections of mainly closed-ended questions. The first section asked for information regarding participants' demographic characteristics, drug use, injecting habits and use of needle exchanges. The second section asked participants about their attitudes to and use of the citric acid sachets and other acidifiers.

Potential participants were approached after the needle exchange staff had served them. Interviews were carried out there and then in a quiet corner of the exchange. Each interview took less than ten minutes to complete and was completely anonymous and confidential. All participants were offered a bar of chocolate and a can of juice for taking the time to participate in the study.

Results

Study participants had drug using careers ranging from between 6 months to 36 years (mean 12.9 years). Injecting careers ranged from 6 months to 32 years (mean 7.9 years). Almost all participants reported heroin to be the drug they had most frequently injected in the last 3 months (93%). Twenty-three (6%) reported injecting cocaine most often and one reported injecting crack most often. The frequency of injecting varied greatly from less than once per day to 9 times per day. However, most participants (65%) reported injecting between 1-3 times per day. Data collected on injecting behaviour and needle exchange attendance suggested that most IDUs did not use needle exchanges as soon as their injecting career began. The mean age of initial injecting was 21.4 years, while the mean age of first attendance at needle exchange was 23.6 years.

Three hundred and forty (94%) of the IDUs interviewed reported using an acidifier to dissolve their drug of choice before injection. All twenty of the IDUs who did not use an acidifier were cocaine injectors. Of the 340 IDUs who did use an acidifier, almost all (99%) reported that in the previous three months they had usually used the single use sachets of citric acid given out at the needle exchange. Thirty-eight participants had used another acidifier as an alternative to their usual acidifier within the previous three months. Most of these IDUs had used either a box or packet of citric acid bought from a shop or pharmacy (53%) or processed lemon juice (35%).

The date when the IDUs had first used the single use sachets varied depending on whether they were resident in Greater Glasgow or Lanarkshire. One hundred and ninety-seven (90%) of the 220 IDUs interviewed in Greater Glasgow had started using the sachets when the provision began there in December 2001, while 119 (99%) of the 120 IDUs interviewed in Lanarkshire had first started using the sachets when the provision began there in March 2002.

The vast majority of participants in this study reported not only using the single use citric acid sachets, but also *preferring* them to all other available acidifiers. Moreover, a number of newer IDUs were not even aware that less safe alternative acidifiers exist, suggesting that the provision of the single use sachets is discouraging IDUs from experimenting with other acidifiers. Furthermore, as well as recognising the single use citric sachets to be an effective acidifier, most of the IDUs interviewed recognised the relative safety of using them compared with using other acidifiers and indeed reported that they had chosen to use them because of this. The message that citric acid is best appears to be being passed on from user to user.

The current provision of 100mg of citric in each sachet seems to be adequate for most users' needs. Almost all participants found that one sachet or less was sufficient to dissolve the amount of heroin they usually injected. Virtually all the IDUs interviewed reported that they usually injected £10 worth of heroin each time (95%). However, the reasoning behind the sachets being single use is not understood by all IDUs, with some saving the remainder of their sachet for their next injecting episode or sharing their sachets with their friends or partner. Clearly, there is still some work needed to stress the importance of users not sharing any of their injecting equipment and paraphernalia.

There is also a need to further educate IDUs about the importance of using a clean needle and syringe every time they inject. As a significant number of the participants in this study expressed a preference for the needle exchanges to provide more than one sachet of citric per needle, it is evident that many continue to reuse their needles. Furthermore, some IDUs continue to use less safe acidifiers when they run out of the single use citric acid sachets. It is vital that these IDUs are encouraged to return to the needle exchange as soon as they start to run out of clean needles and sachets. Part of this process should include continuing to educate users about the risks associated with using acidifiers such as processed lemon juice and vinegar.

One hundred and twenty-nine (38%) of the 340 IDUs who reported using an acidifier to dissolve their drugs prior to injecting had experienced some sort of eye problem as a result. The greater the frequency with which the IDUs injected, the more likely they were to have experienced eye problems of some kind. However, this study has confirmed that processed lemon juice and vinegar are the acidifiers most commonly associated with side effects such as blurred vision, severe headaches and sore eyes. Using the single use citric acid sachets, on the other hand, does not seem to lead to IDUs suffering from such afflictions. However, use of the sachets *can* still lead to citric burns, and although their use does not increase the number of burns in comparison to other acidifiers, it is important to stress that as little as possible is used to minimise any risk.

In addition to offering IDUs a safe method of dissolving their drugs, the provision of single use citric acid sachets seems to have increased the frequency of use of the needle exchanges. While it is difficult to clearly link the provision of citric acid to frequency of use, there has been a general increase in the number of visits in Glasgow and Lanarkshire since provision began. This increase in visits not only means IDUs are more likely to be using clean needles but also that they are returning used ones, increasing the public's safety as well as their own.

Recommendations

Given these findings, the following recommendations are made:

- All fixed site needle exchanges and pharmacy exchanges in Greater Glasgow and Lanarkshire to continue providing the 100mg single use citric acid sachets.
- Extend this provision across the UK.
- Repeal or change in the current law (Section 9A, Misuse of Drugs Act 1971) which forbids the supply of drug injecting paraphernalia (other than needles and syringes) to drug users. Since this research was carried out the Government has proposed to amend the misuse of drugs legislation (Section 9A, Misuse of Drugs Act 1971) so that certain articles of drug paraphernalia (including single use citric acid sachets) can be provided to IDUs for the purposes of harm minimisation. This report supports these moves.
- Further educate IDUs on the importance of using a clean needle and syringe each and every time they inject and on the importance of not sharing any of their injecting equipment and paraphernalia.

References

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