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Injectable opiate prescribing in Cornwall

AIMS AND METHOD

To compare local practice with national guidelines, examine the areas of divergence, and establish complication rates for methadone and diamorphine. Fifty-one patients from Cornwall treated with injectable methadone or diamorphine were interviewed using a standard questionnaire.

RESULTS

Fewer problems were reported by individuals using injectable diamorphine, though for both drugs intramuscular injection was more problematic than intravenous injection. Injections into the groin were common, as was problem drinking.

CLINICAL IMPLICATIONS

Intramuscular administration of medications may be more likely to cause abscesses or cellulitis. Ongoing groin injecting and alcohol misuse is common, but should probably be tolerated if other harm reduction benefits accrue. It may be prohibitively expensive to set up injecting rooms in rural parts of the UK and future policy should reflect this.

In the UK, injectable opiates have been used longer than in any other country as a treatment for heroin misuse (Strang & Gossop, 1994). Also, while others have started using injectable diamorphine with promising results (Perneger *et al*, 1998; Van Den Brink *et al*, 2002), the UK remains almost unique in continuing to provide injectable methadone. In 1995 this was the chief injectable used, comprising 90% of injectable prescriptions in England and Wales (Strang *et al*, 1996).

In the studies above carried out in mainland Europe, injectable medications have been administered under high levels of supervision in dedicated injection rooms. The Randomised Injecting Opioid Treatment Trial (RIOTT) study under way in the UK (Lintzeris *et al*, 2006) has recreated these conditions to a large extent and it will add invaluable information to the burgeoning scientific literature on injectable medications. There is, however, still a need to do more to examine the current practice in the UK as it has evolved over 30 years within the context of less close monitoring arrangements.

Reflecting on these arrangements, in 2003 the National Treatment Agency published a report with guidelines on the use of injectable medications (National Treatment Agency, 2003). It stated that 'injectable maintenance treatment is most appropriate for addicts who have not responded to oral maintenance treatment'. It also listed eligibility criteria and a number of cautions and precautions. However, it contained little information on a number of issues which are of practical concern to

clinicians in the field, for example, intramuscular or subcutaneous administration and appropriate responses to individuals who persist in using their medications in a potentially harmful manner.

Thus, although it provides a template for good practice, some aspects of the report appear more aspirational than achievable. A survey of 104 people receiving injectable opiates in the north-east of England was carried out in 2000 (Sell & Zador, 2004). Among this sample, 93% used their medication intravenously and more than half injected it into the femoral vein (groin); injectable diamorphine was preferable to injectable methadone. Though the reasons for this preference were not explored in detail, there was a clearly stated desire among those on methadone to be switched to diamorphine. The survey did not study the previous experience of individuals who had had both medications, but it highlighted the fact that very few of them appeared motivated to stop injecting or to detoxify, and for many the immediate goal in treatment was increasing the dose.

We felt it was important to audit the safety and effectiveness of local practices to measure them against the national standards as outlined in the National Treatment Agency report (2003), to understand how clients use injectable medications when unsupervised (including whether they prefer to apply them intravenously or intramuscularly) and to establish a baseline measure of complication rates with both medications. We

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also wanted to report on the nature of clinical practice as it has evolved locally. We hoped that this would help guide future practice.

Method

Cornwall is an impoverished rural/maritime county in the far south west of England, with average incomes among the lowest in the European Union (The Guardian, 2005).

Around 10% of individuals receive a substitute prescription from the specialist prescribing service (community drug and alcohol team) in the form of an injectable opiate, either methadone or diamorphine. Injectable methadone is nearly always offered before injectable diamorphine is considered, and the patient is encouraged to inject their medication intramuscularly where possible, especially diamorphine. This local policy has been adopted partly because many individuals on injectable medications do not have accessible veins and partly because there should be a lesser risk of overdose.

While excessive alcohol intake is discouraged in patients receiving an injectable prescription, this has only very rarely been used as a reason to stop or reduce the medication.

Patients were approached by a dedicated researcher in clinics predominantly in the mid and west of Cornwall. She sought to recruit individuals for interview during a fixed period in October and November 2006.

Out of 66 individuals in receipt of an injectable script, 51 were interviewed. One further refused to take part, and another aborted the interview, which gave us a 96% response. The remaining 13 individuals were not interviewed because of relative inaccessibility (most lived in the small dispersed communities in North Cornwall). Rather than being asked about their current prescription, participants, many of whom had used both diamorphine and methadone, were asked about their experience with both medications.

Results

Sample characteristics

The 51 individuals interviewed comprised 36 currently receiving diamorphine ampoules (70%) and 15 currently receiving methadone ampoules (30%). Of those currently on injectable diamorphine, 32 (88.9%) had previously had injectable methadone, while 4 (26.7%) of those currently on methadone ampoules had had diamorphine. This corresponded to total sample sizes of 47 who had had injectable methadone and 40 who had had injectable diamorphine.

The methadone group ($n=47$) admitted to misusing heroin for a mean of just less than 10 years before being prescribed methadone ampoules and being prescribed oral medication for around 5 years on average before being prescribed ampoules (the maximum was 20 years). The mean dose of oral methadone before being put on ampoules was 100 mg (maximum 300 mg). This group

described using injectable methadone for a mean of 43 months, or 3.5 years.

The diamorphine group misused heroin for a mean of nearly 12 years before being prescribed diamorphine ampoules. They had been on an oral medication for a mean of more than 7 years (88 months) and the highest dose of methadone prescribed before receiving ampoules was 150 mg (maximum 850 mg). They had been prescribed injectable diamorphine for a mean of 40 months or just over 3 years.

Methadone-related problems

Methadone was more often injected intravenously (52%) than intramuscularly (48%). Nearly half of the sample (47.4%) described having had problems using methadone intramuscularly, most commonly reporting pain, stinging, bruising, lumps, swelling or inflammation. Approximately half of those who said they had no problems with intramuscular injections still complained of discomfort as a result. Four clients on injectable methadone (8.7% of the total sample) visited their doctor about abscesses or infections that needed to be treated and that had been caused by intramuscular injections.

The apparent rate of problems was less for those injecting methadone intravenously, with 29.4% describing having had problems when injecting by this route. These were similar in nature (e.g. pain, stinging, etc.) to those described for intramuscular use. Of those who complained, only one individual had to see a doctor.

Overall, the problem rate for intravenous use of methadone was greater than that for diamorphine for either route.

Diamorphine-related problems

Half of the participants injected diamorphine intramuscularly and the other half intravenously. Around 20% of the individuals on diamorphine reported having problems when injecting it intramuscularly – this was substantially less than for the methadone group. The problems described seemed more trivial and included 'not getting a hit'.

A similar proportion (10%) saw a doctor specifically because of a problem caused by intramuscular diamorphine injections (abscesses, $n=3$; tingly arm, $n=1$).

The same pattern relative to methadone was seen with intravenous use, but with a lower number of individuals describing having problems. None of the participants reported overdosing while on their injectable prescription.

Injection sites

When patients were asked to describe the location they most frequently injected the medication intramuscularly, they tended to give a number of different answers, reflecting the necessity of regularly rotating the site used.

Both diamorphine and methadone were mainly injected intramuscularly in the shoulder (60%), the thigh



and the buttock (40% each). Intravenous injections, both of methadone and diamorphine, were injected into the arm by roughly half of participants. Around 20% regularly injected into their groins, but this practice seemed more common in the methadone group ($n=9$, 25%) than the diamorphine group ($n=5$, 15%). There were also alarming reports of injections into the neck – three individuals (7.5%) in the methadone group and one in the diamorphine group (2.7%).

Administration technique and supervision

Participants were asked on what percentage of occasions they clean the injection site. Eight of the whole sample (16%) did this rarely if ever (on less than 1% of occasions). A rather larger proportion ($n=30$, 60%) claimed to clean the injection site every time. The mean for cleaning the injection site was 79% of occasions and this was higher for patients currently on diamorphine.

Almost all participants (49 out of 51) claimed to use clean needles for each injection. The remaining 2 said that they did so on 90% or more of occasions.

Only 11 out of 51 (22%) had at some point been witnessed by a clinician when injecting their medication.

Ongoing drug and alcohol misuse

Most of the participants (35 out of 51, 70%) had not misused street heroin on top of their prescription medication in the month before our survey. This would seem to be a good proxy for being stable and the figure was similar for both the diamorphine and methadone groups. Ten of the remaining 16 had misused street heroin on up to four occasions. The mean score for on-top misuse in the month before the survey was 2.1 days.

There was some evidence that a minority of individuals on methadone were particularly unstable. The mean rate of on-top misuse was nearly five times higher in those on injectable methadone (4.9 days) than in those on diamorphine (1 day; $t=-2.3$, $P=0.02$). This difference was accounted for by four individuals on methadone who were continuing to misuse street heroin on a daily or almost daily basis. This pattern of on-top drug misuse was not seen in those on diamorphine.

Alcohol misuse in the previous month showed a skewed u-shaped distribution with 25 participants (50%) not drinking at all, 7 (13%) drinking every day and 4 (7%) drinking on 25 or more days during the previous month. The overall mean was alcohol consumption on 8.4 days during the previous month. The mean for those on diamorphine was 9.1 days during the previous month *v.* 6.9 days for those on methadone. This difference was not statistically significant.

Discussion

Prescribing injectable medications has been almost unique to British psychiatry and so it is important to document existing practices. This was the first survey of injectable prescribing in a rural part of the UK.

Our data support the view that injectable opioids have been used by local clinicians only when other treatments have failed. The eligibility criteria employed locally are therefore in line with National Treatment Agency's recommendations (2003).

Regarding patient's own experiences, problems were twice as likely to be reported using injectable methadone, regardless of whether it was injected intramuscularly or intravenously. Injectable methadone can be painful to administer, which in our view is one of the main reasons why most patients consider it inferior to diamorphine and why they may be more likely to inject it into larger, more central, veins.

The complication rate for those that injected both drugs intramuscularly appeared higher than that for medications injected intravenously and it is unclear whether or not this is caused by poor injection technique. Failure to clean injection sites was common and yet this would probably not explain the higher complication rate for intramuscular use as compared with intravenous use, as it would seem unlikely that a person would clean their skin for one mode of administration and not for the other. The risk of overdose should be less with intramuscular administration, but this type of administration should be recommended cautiously – and not routinely – as part of an overall harm-reduction strategy. Intravenous use may be preferable in some instances.

More than 15% of both groups were frequently injecting their medication into their groins and several admitted to injecting into their neck veins. This usually occurs when more peripheral veins are not accessible, another feature of the usage of injectable opioids (Sell & Zador, 2004). It is under these circumstances that it would seem preferable to recommend to the patient to apply their medication intramuscularly, the strategy that has been used locally. However, this is difficult to monitor and verify without witnessing every individual administration.

The rate of daily on-top alcohol misuse was quite high in both groups. This was more of a concern in the methadone group who were also more likely than the diamorphine group to still be misusing heroin. Although many individuals in the diamorphine group were drinking alcohol regularly, none of them were continuing to misuse street heroin. The National Treatment Agency guidelines suggest that ongoing alcohol misuse, rather than contraindicating an injectable script, is a reason to 'exercise caution'. It does seem reasonable that where a diamorphine treatment has been successful at stopping street heroin misuse and increasing harm reduction gains, it should not necessarily be withdrawn merely because the individual is misusing alcohol. However, alcohol-related pathology and health costs should not be underestimated in this group.

After over 5 years of prescribing injectable diamorphine to around 50 patients and a longer period of prescribing to a smaller group, none of the patients died due to overdose, though a few died following physical illness (e.g. liver failure). Overdose therefore appears to be a rare event and we would question the need for

original
papers

supervised administration as it is being adopted elsewhere.

In rural areas, such as Cornwall, providing supervised administration facilities (injecting rooms) is likely to prove prohibitively expensive, and having other safeguards in place that limit leakage of medications onto the black market may have to be sufficient. This could include an ampoule return scheme similar to the one we have developed, where pharmacists are paid to count returned ampoules before dispensing the next prescription. More guidance to commissioners is needed in this area.

In Cornwall we have also initiated a 'diamorphine panel', a special review clinic for patients on diamorphine attended by the prescribing consultants, the service manager and the service user coordinator. This was initiated when, for cost purposes, rationing of diamorphine was introduced in Cornwall over a year ago. The panel reviews individuals once a year, sets treatment goals and prescribes diamorphine to those most in clinical need.

Cost is still a big issue. Diamorphine continues to be far more expensive in the UK than Europe and supplies remain somewhat precarious despite the notable failure of supply that hit the UK in 2004/5 (White *et al*, 2005). These issues of paramount importance are ones that only the government can address, relating as they do to the legislative controls around opium refining and manufacture. Establishing the cost-effectiveness of injectable prescribing in the UK will hinge on this chronically unresolved issue and so for the foreseeable future guidance to clinicians and commissioners will remain unclear.

Declaration of interest

None.

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Vitamin D deficiency in psychiatric in-patients and treatment with daily supplements of calcium and ergocalciferol

AIMS AND METHOD

This study examines the prevalence of vitamin D deficiency in a group of male psychiatric in-patients and follows 16 of them prospectively during treatment with calcium and ergocalciferol tablets.

RESULTS

Of 17 male patients, 15 had vitamin D deficiency and two had borderline deficiency. Vitamin D deficiency was

associated with Black and minority ethnic background. Improvement in vitamin D status was observed following replacement therapy.

CLINICAL IMPLICATIONS

Vitamin D deficiency may be widespread in the psychiatric population particularly in Black and minority ethnic but also in White European in-patients. Vitamin D level should be routinely monitored in psychiatric

in-patients. For those with vitamin D deficiency, replacement therapy can be commenced with calcium and ergocalciferol tablets (containing 10 µg of ergocalciferol), which is safe and well tolerated. All psychiatric in-patients should have adequate exposure to sunlight and attention to diet to ensure that they receive their recommended daily allowance of vitamins and minerals.

The main source of vitamin D is from ultraviolet-B radiation on the skin. It is also obtained from foods such as fish, eggs, dairy products and fortified margarine or

cereals. Sunlight deprivation is more important than inadequate nutrition as a cause of vitamin D deficiency and therefore failure to spend time outdoors, covering up