Online Availability of Dextropropoxyphene over Time, 2003–2005

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ABSTRACT

Online pharmacies are increasingly common, and some of them have been reported to inappropriately supply prescription-only medicines. Dextropropoxyphene-containing compounds are addictive and frequently implicated in fatalities occurring in the United Kingdom. We aimed here at assessing the online availability of dextropropoxyphene for purchase over a time-span of 2 years (September 2003-August 2005). A Google™ search was run in September 2003 using different sets of keywords and the first 100 links identified were thoroughly assessed. In March 2005, the same e-pharmacies websites identified at baseline were accessed again and a Google™ search using the same sets of keywords previously used was run as well. Furthermore, a specialized search with Froogle™ was run both in March and August 2005. Although an illegal practice in most countries, a number of websites willing to sell the compound internationally were identified at the time of the baseline search. In March 2005, the Google™ search for vending websites identified 361,000 links, compared with 40,000 18 months before. Only half of dextropropoxyphene vending e-pharmacies were still active by March 2005 but, at that point in time, access to Froogle™ apparently facilitated the task of online dextropropoxyphene purchase. By August 2005, however, the same Froogle™ search identified only one link aimed at online dextropropoxyphene shopping. In the United Kingdom, dextropropoxyphene-related products will be withdrawn later this year but this may have only limited impact on the availability of the compound. The emergence of Internet as an unregulated source of controlled substances is an important development that may have significant public health implications. This issue needs to be dealt with at both international and national level.

INTRODUCTION

Online pharmacies are increasingly popular; prescription drug sales on the Internet can provide benefits to consumers, including easier access, convenience of shopping 24 h per day; an almost unlimited number of products for customers; potential lower product costs; and greater anonymity. Moreover, hyperlinks and search programs easily provide online customers with written product information and references to other sources of information.1 Internet pharmacies offering prescription drugs for sale may provide just an online version of the services traditionally provided; these sites require the customer to have a prescription from their own doctor and will often refuse to supply potentially addictive drugs. On the other hand, Bessell et al.2 found that one out of

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five Internet pharmacies appeared to supply prescription-only medicines with no prescription required and only 12% displayed quality accreditation seals.

Propoxyphene is a narcotic compound whose dextro-isomer has an analgesic effect. In the United Kingdom, dextropropoxyphene is available either on its own or in combination with paracetamol (co-proxamol). Co-proxamol is frequently taken in overdosage; in 2002 alone, it was implicated in 287 deaths in England and Wales.‡ A higher proportion of suicides in the 10–24-year age group in England and Wales (1997–1999) were due to co-proxamol than in the other age groups. Most consumers of intoxicating drugs access the Internet to obtain information, and vulnerable subjects might take advantage of unrestricted online accessibility to psychoactive drugs. A suicidal attempt carried out by a young individual with the means of a concoction of drugs, including propoxyphene, bought online has already been reported. It has been suggested that restricting availability of co-proxamol could have an important role in suicide prevention. As a result, the UK Committee on Safety of Medicines has given recent notice that co-proxamol and all related products will be withdrawn later this year. Apart from its lethality risks, dextropropoxyphene may be addictive.

There is both a lack of professional attention to drug-related issues on the Internet and an exclusive focus on the actual, “real,” market by law enforcement agencies. The collaborative, EU-funded, Psychonaut 2002 project has developed and implemented a web-based tool which fosters collection and analysis of data from web pages related to psychoactive compounds. Due to the changing nature of the Internet, however, a single snapshot cannot give enough information on the fluctuating availability of an index psychoactive compound. In fact, some of the links may be at risk of being made inactive by law enforcement agencies. On the other hand, Internet surfers are being constantly offered with increasingly effective and specialized online information finding tools. This may increase the chances of online location of a given compound for sale. We aimed here at assessing the online availability of dextropropoxyphene for purchase over time (September 2003 to August 2005).

METHODS

A number of pilot studies were initially run using several search engines (i.e., Infoseek™, AlltheWeb™, AskJeeves™, Excite™, Mondo™; AltaVista™) and Google™ was chosen because of its popularity between web surfers, providing both a comprehensive coverage of the web and a satisfactory level of relevance of its results. As a consequence, a Google™ search was run in the last week of September 2003 with the “co-proxamol” keyword. Non-English websites were excluded from the search. This search identified only 33 links and none of them appeared to be a vending website. On the other hand, the use of the keywords’ string “international online pharmacy Darvon” (i.e., one of the most popular U.S. brand names for dextropropoxyphene) produced a list of some 40,000 links to websites. Since no more than a few hundreds links are actually made available in running an online search, in line with previous similar exercises carried out by the EU-funded Psychonaut 2002 project, only the first 100 links were thoroughly assessed for the purpose of this study. Survey data included prescription and subscription requirements, availability of the product for purchase and possibility of both national and international delivery. To assess over time changes of dextropropoxyphene purchase possibilities, the Google™ baseline searches with the “co-proxamol” and “international online pharmacy Darvon” keywords were run again in March 2005. Furthermore, at the same time (March 2005) the online pharmacies websites that were allegedly offering the compound for sale at baseline were accessed again. In January 2004, Google™ made available a product search (i.e., Froogle™), which applies the power of Google’s search technology to the world of online shopping. To assess the potential of the use of this specialized tool to identify dextropropoxyphene vending sites, a Froogle™ search was run with the “buy Darvon” keywords both in March and August 2005.

The St. George’s, University of London, Local Research Ethics Committee granted the ethical approval of the project.

RESULTS

Out of the 100 links identified at baseline with the “international online pharmacy Darvon” search, 23 were redundancies (i.e., same or different links pointing to the same website twice or more). Most (57%) of the remaining websites were not online pharmacies but web directories and search engines, providing even more links to online pharmacies offering dextropropoxyphene/Darvon for sale. In March 2005, the “co-proxamol” and “international online pharmacy Darvon” Google™
searches identified respectively about 22,700 and 361,000 links to websites, compared with 33 and 40,000 links 18 months before. Those 20 online pharmacies that allegedly offered dextropropoxyphene for sale in September 2003 are listed in Table 1. When the same pharmacies’ links that were offering the compound at baseline were re-accessed in March 2005, dextropropoxyphene appeared to be still on offer, without any restrictions, from 10 of the above links. The drug was available from another link as well, but special prescription procedures were in place. A further link, although not offering the compound, was allegedly able to re-direct the customer, after a subscription fee, to a number of online pharmacies where the product was available. From the remaining eight links, the compound was not available any longer (Table 1).

The March 2005 Froogle™ search provided 250 links to websites, and from the very first “10 Results” page, five unique Darvon vending links were already identified. Publishing the same site under different URL addresses seemed to be common practice. The listed online pharmacies seemed to sell and ship dextropropoxyphene internationally. Few links required, and promptly provided, a medical prescription based upon online self-reported symptom

<table>
<thead>
<tr>
<th>URL</th>
<th>Prescription required</th>
<th>Subscription required</th>
<th>International delivery</th>
<th>Persistence of purchase offer in March 2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 &lt;www.mydrugplace.com/&gt;</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>2 &lt;www.mosttrustedpharmacy.com/&gt;</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>3 <a href="http://pharmamex.com/">http://pharmamex.com/</a></td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>4 &lt;www.onlinemexicanpharmacy.com/&gt;</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>5 &lt;www.drugstore.com&gt;</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Yes; special procedures in place</td>
</tr>
<tr>
<td>6 &lt;www.yourdrugconnection.com/&gt;</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>7 &lt;www.online-pharmacy-discount-prescription.com/&gt;</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>8 &lt;www.quikrelief.net/&gt;</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Allegedly gives access, after subscription fee, to a number of e-pharmacies where the product can be found</td>
</tr>
<tr>
<td>9 &lt;www.themedshop.com/&gt;</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>10 &lt;www.ironstonepub.com/&gt;international-pharmacy.html&gt;</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>11 &lt;www.wellpharmacy.com/&gt;</td>
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<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>12 &lt;www.centurydrugs.com/&gt;</td>
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<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>13 &lt;www.pharmabymail.com/&gt;</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>14 &lt;www.farmaciamundial.com/&gt;</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>15 &lt;www.mondialpharmacy.com/&gt;</td>
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<td>No</td>
<td>Yes</td>
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<tr>
<td>16 &lt;www.anymedicine.com&gt;</td>
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<td>No</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>17 <a href="http://the-dispensary.com/">http://the-dispensary.com/</a></td>
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<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>18 <a href="http://pharmacy-online-4u.com/">http://pharmacy-online-4u.com/</a></td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>19 &lt;www.gopharmacy.com/&gt;</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>20 &lt;www.cydrugs.com/&gt;</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>
checklists; others did not have any requirements. Finally, the August 2005 Froogle™ search provided only one link to Darvon vending websites.

**DISCUSSION**

To the best of our knowledge, the present exercise constitutes the first systematic assessment over time of online availability of an addictive prescription drug. It appears that websites listed here were selling internationally dextropropoxyphene, even though providing this compound to customers lacking a valid medical prescription is an illegal practice in most countries. Health professionals need to be aware of Internet being a new drug source, which may change the rates and patterns of psychoactive drugs’ use. It appeared from here that a massive increase of number of links identified was observed between 2003 and 2005. This may well have been the consequence of the gradual increase in Google™ coverage. However, a growing popularity of online pharmacies might be taken into account as well as an explanatory factor. Although only half of those online pharmacies which were actively proposing dextropropoxyphene compounds at baseline were still active by March 2005, the availability of more refined services for online shopping (e.g., Froogle™) seemed to have initially facilitated the task of online dextropropoxyphene purchase. By August 2005, however, the Froogle™ search identified only one vending link. This is an intriguing issue, which might possibly be explained by a search restriction imposed by Froogle™ itself. Most of the websites selling prescription drugs appeared to be run by the same people/organizations. In fact, a number of similarities between site layouts, database content, “about us” descriptions and hyperlinks between them suggested a common designer. The multiple linking may be a tactic precisely in order to establish a high profile listing on search engines such as Google™, which arrange search findings on the basis of number of links to a site (PageRank™).

One could wonder about possible risks of this increased online dextropropoxyphene availability over time. It may be concluded from the present findings that the UK Committee on Safety of Medicines decision may have only limited impact on the availability of the compound to interested parties.

**Comparison with existing literature**

Data shown here confirm a relatively rapid change of websites’ scenarios. A study run by the Austrian Ministry of Health found out that 14% of the 150 investigated online pharmacies had disappeared 2–3 months after the initial visit.

**Implications for future research and clinical practice**

Few online pharmacies are based in Europe, yet online markets are worldwide. Although European Community legislation does not stipulate on the legality of online pharmacies on European internal markets, national legislation may rule them out, either directly or indirectly. Online pharmacies should post information on their websites about their ownership, licence, name of the pharmacist in charge and a phone number where consumers can contact the pharmacist. Quality criteria for online consultations and online prescribing should be
taken into account, and should potentially be a prerequisite for any certification program. The U.S. National Association of Boards of Pharmacy (NABP) has implemented a new program that provides a NABP “seal of approval” to sites. However, this seal system is not commonly used; only 14 U.S. online pharmacies were listed in October 2003.

The unregulated sale of prescription drugs has been highlighted by the United Nations as one of the priorities to be addressed. The unique qualities of the Internet, including its broad reach, relative anonymity, and ease of creating new websites or removing old ones, as highlighted here, pose new challenges for the enforcement of existing laws. Because of Internet global nature, drugs’ vendors transcend different countries’ laws, making it difficult to take action against those engaging in illegal practices. An effective Internet enforcement process needs to be dealt with at both international and national level. Nations clearly cannot solve this problem without international help. Collaborating cyber enforcement operations, aimed at inactivating those links offering unrestricted access to controlled drugs, should be implemented.

Those who do have some IT skills and own a credit card are most likely to come from the socio-economically privileged sections of society and may possibly comprise the group of “rogue” online pharmacies customers. The emergence of Internet as an unregulated source of controlled substances is an important development that may have significant public health implications. The results from the Psychonaut 2002 project seem to provide a unique opportunity to assessing patterns in Internet-related drug issues.

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AUTHORS’ CONTRIBUTIONS

F.S. is the Psychonaut 2002 project grant holder/European coordinator and wrote the paper; P.D. is the senior researcher of the Psychonaut 2002 project and carried out the web search; A.B. is the Scottish representative of the Psychonaut 2002 project and helped in the interpretation of the results.

REFERENCES


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