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# Using Facebook to Increase Spontaneous Reporting of Adverse Drug Reactions

Online social networking is increasingly used for communication among patients with the same or similar disorder, and among patients and their physicians. The patients share their personal clinical information, request disease-specific guidance and feedback, and receive emotional support[1] from each other and from their physicians.[2] Adverse drug reactions (ADRs) lead to considerable morbidity and mortality worldwide and underreporting is a significant problem everywhere, but especially in developing countries.[3] Most methods used for improving spontaneous reporting include education of health workers, oral or written reminders about ADRs, pamphlets for patients, etc.[3,4] However, we are not aware of a study that investigated intervention through an online social network directed at the general public. The aim of our work was to test whether forming a group on Facebook focused on ADRs would lead to the discovery and reporting of ADRs experienced by members of the group.

The authors of this Letter to the Editor founded a group on Facebook (http://www.facebook.com/group.php?gid=126217897394692&v=wall) on 14 May 2010 with open access to the general public. Communication with members took place on the group 'wall', and through providing educational information (texts and photos). The texts described several important areas: the definition of an ADR, what kinds of ADRs exist and how to recognize them; which factors cause ADRs; medical practice examples; importance of monitoring and reporting; and advice on the safe use of drugs. For interested members, an online questionnaire was offered where they could report their ADRs to the group administrators (one clinical pharmacology specialist and three general practitioners). A link to the questionnaire was on the group wall. The first part contained questions about the drug name, form, dosage, manufacturer, and space for a description of an adverse reaction. The second part of the questionnaire consisted of questions from the Naranjo scale for causality assessment of ADRs.[5] The group administrators rated causality of the reported ADRs, based on the data from the online questionnaire.

During its 7 months of existence, the group has attracted a total of 1034 members. There were 973 personal profiles (94.1%) and the remainder were promotion profiles, pages and groups. Data on age were available for 371 members (age range from 18 to 60 years). There were 238 members younger than 29 years of age (64%), 82 members between 30 and 39 years of age (22%), and 51 members older than 39 years of age (14%). Data on sex of the group members were available for 973 members (723 females [74%] and 250 males [26%]). Data on level of education were available for 370 members (326 [88%] members with a university degree [67% with a degree in medicine, dentistry or pharmacy] and 44 members [12%] with a high-school degree). Twelve percent of the members stated that they were employed, and for others the data on employment were missing.

In total, 21 ADRs were reported, all by different members (2% of the total group members): 4 ADRs (19%) were rated as 'definite' (Naranjo score ≥9), 11 (52%) as probable (Naranjo score 5–8) and 6 (29%) as possible (Naranjo score 1–4).[5] Actual ADRs reported and their ratings are shown in table I.

The ADRs reported on the Facebook page were not serious or unexpected, but their causal relationship with the drugs was strong. This suggests high sensitivity of this instrument for ADR reporting. It also has high 'yield' of reported ADRs (2%) when compared with other interventions aimed at the general public (e.g. the annual incidence of ADR reporting by patients in the Netherlands from 2004 to 2007 was <0.01%).[6] However, the majority of members of the Facebook group held a degree in medicine, dentistry or pharmacy, which could have favoured a relatively high rate and quality of reported ADRs. Nevertheless, using Facebook groups for improving

**Table I.** Reported adverse drug reactions (ADRs)

| Drug and formulation, if known | Adverse reaction | Naranjo score[a] [5] |
|---|---|---|
| Aciclovir, oral | Urticaria | 5 |
| Oral contraceptive (ethinylestradiol/gestodene) | Increased body temperature (>37.5°C) | 6 |
| Aspirin (acetylsalicylic acid) 100 mg, oral | Pruritus | 4 |
| Ginkgo biloba leaf extract, oral | Skin rash | 4 |
| Fero-II-fumarate, oral | Gastrointestinal upset, constipation | 8 |
| Aspirin 100 mg, oral | Bruising | 5 |
| Multivitamins, oral | Skin rash, desquamation | 3 |
| Ergotamine, oral | Vertigo, weakness | 9 |
| Ofloxacin | Dyspnoea | 4 |
| Amoxicillin | Skin rash | 5 |
| Combination (paracetamol [acetaminophen] + codeine + caffeine + propyphenazone), oral | Vertigo | 9 |
| Pentaerythritol tetranitrate, oral | Vomiting, fainting | 9 |
| Diclofenac, oral | Paraesthesia, stiff neck | 9 |
| Lamotrigine, oral | Skin rash, oral cavity enanthem, enlarged neck lymph glands, tiredness, blurred vision | 8 |
| Echinacea | Increased body temperature (>37.5°C) | 7 |
| Doxycycline, oral | Nausea | 8 |
| Sertraline, oral | Headache, tinnitus, loss of appetite | 6 |
| Dextriferron + vitamin B12 | Pemphigus medicamentosa | 4 |
| Pseudoephedrine + ibuprofen | Palpitations, tachycardia, vertigo | 4 |
| Nifedipine, slow release, oral | Facial flush, headache, hypotension | 7 |
| Cotrimoxazole, oral | Skin rash, pruritus | 6 |

a Definite ADR (Naranjo score ≥9), probable ADR (Naranjo score 5–8) and possible ADR (Naranjo score 1–4).

spontaneous ADR reporting could be a promising option, taking into account the low costs of intervention (in our study, 8 person-days for a period of 7 months).

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