Prevention of NSAID gastropathy in elderly patients. An observational study in general practice and nursing homes

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Abstract

Objectives: the objectives of this study were to (i) survey the risk factors for NSAID gastropathy in outpatients (elderly patients in the community), compared to those living in old people’s homes or nursing homes, (ii) study the prescription of medication prophylaxis during use of NSAIDs conform the current national guidelines and (iii) survey the influence on gastrointestinal symptoms and safety of pantoprazole 20 mg as prophylaxis for NSAID gastropathy.

Methods: patients over 65 years of age, using an NSAID without prophylaxis or newly starting NSAID treatment were included in the study. Pantoprazole 20 mg was prescribed as prophylaxis. Patients using an NSAID with prophylaxis being a proton pump inhibitor at the first visit were registered for epidemiological reasons. Demographic data, risk factors, gastrointestinal complaints, and adverse events were collected at \( t = 0 \), \( t = 2 \) weeks, \( t = 3 \) months and \( t = 6 \) months. Differences between groups were analysed with Chi-square tests and Mann-Whitney U tests; changes in time in GI symptoms were tested using Wilcoxon signed ranks tests and McNemar tests.

Results: one hundred eighty one general practitioners (treating outpatients and patients in old people’s homes) and five nursing home physicians participated in the study and a total of 615 patients were included (522 patients treated by general practitioners (GP) and 93 patients in nursing homes). Four hundred thirty two patients were using NSAIDs without prophylaxis or started using an NSAID at the first visit; 269 (62.1%) and 163 (37.9%) patients respectively. 65.3% of the outpatients (224 out of 343) did not receive indicated prophylaxis, versus 76.2% (16 out of 21) in old people’s homes and 42.6% in nursing homes (29 out of 69) \((P<0.001)\). Patients in nursing homes had more risk factors for gastrointestinal complications (2.94 \( \pm \) 1.3 versus 1.77 \( \pm \) 0.9) than outpatients.

More patients using an NSAID prior to the study complained of gastrointestinal symptoms compared to new users \((P<0.001)\). This seems to indicate that NSAIDs caused these symptoms. After 2 weeks of treatment with pantoprazole, there was no statistical difference between the two groups. Moreover, both groups showed improvement in complaints \((P<0.001)\).

Only nine patients in the study population (3.1%) reported mild adverse events (e.g. nausea, headache) with an average of 1.1 adverse events per patient. Five patients (1% of the included population) died during the study period, but there was no relation to the NSAID or pantoprazole.

Discussion and Conclusion: patients in nursing homes had more risk factors for NSAID gastropathy than patients in old people’s homes or outpatients (>65 years). Although in nursing homes co-prescription of prophylaxis during NSAID use is more common, in general the Dutch guidelines on adequate NSAID use are still not fully implemented at this moment. The results also showed that pantoprazole was effective in diminishing gastrointestinal complaints, as well as preventing symptomatic NSAID gastropathy. Moreover, pantoprazole showed to be a safe and well-tolerated drug in our treatment group.

Keywords: NSAID, gastropathy, elderly
Introduction

Non-steroidal anti-inflammatory drugs (NSAIDs) belong to the most frequently used drugs in the Netherlands. In 2004, from every 1,000 prescriptions of general physicians in the Netherlands, 122 were for the NSAID diclofenac [1], which made it the second most often prescribed drug in the Netherlands. On top of these prescriptions, NSAIDs are also frequently purchased over the counter.

Guidelines for the use of non-selective NSAIDs advise gastric protection with a proton pump inhibitor (PPI) or misoprostol for patients with risk factors for gastrointestinal complications, i.e. age over 70 years, history of a peptic ulcer, heart failure, diabetics or severe rheumatic arthritis, use of high doses of NSAID and concomitant use of anticoagulants drugs, acetylsalicylic acid, oral corticosteroids or selective serotonin re-uptake inhibitors (SSRIs) [2].

There is no evidence that prescription of the standard dose of H₂ receptor antagonists, mucosa protective drugs or antacid drugs offer gastric protection [2–4].

The risk of developing adverse drug reactions (ADRs) increases with the number of additional risk factors. A study in patients with gastrointestinal haemorrhages caused by NSAIDs, showed that 70% of the patients had three or more risk factors [5].

ADRs caused by NSAIDs often result in hospital admissions. In a large prospective observational study in the UK, ADRs caused by NSAIDs (including aspirin) were responsible for 29% of all ADR-related hospital admissions [6]. Other studies have also shown that the majority of patients with a bleeding ulcer or an active peptic ulcer had used NSAIDs [7]. Due to many factors (e.g. comorbidity, polypharmacy, altered pharmacokinetics) elderly patients are more susceptible to adverse drug reactions of NSAIDs like dyspeptic complaints, bleeding ulcers, erosions and perforations caused by inhibition of the prostaglandin synthesis [8–10]. Moreover, elderly patients often show less transparent clinical symptoms of damage of the gastro-intestinal tract [11]. Despite the increased risk of complications, NSAIDs are often used by elderly patients [12,13].

Several studies have shown that in the majority of patients for which gastric protection should be prescribed, this protection is not provided [14–17].

The objectives of the current study were to (i) survey the risk factors for NSAID gastropathy in outpatients (elderly patients in the community), compared to those living in old people’s homes or nursing homes, (ii) study the prescription of medication prophylaxis during use of NSAIDs according to the current national guidelines and (iii) survey the influence on gastrointestinal symptoms and the safety of pantoprazole 20 mg as prophylaxis for NSAID gastropathy.

The characteristics and differences between regular old people’s homes and nursing homes have been described previously [18]. The main difference between the two groups is the level for care dependency during activities for daily living. Patients in nursing homes need help from special trained nursing staff whereas patients in old people’s homes usually only need a helping hand.

Methods

An open observational study following a real-life design (current daily practice) was conducted in 181 randomly invited general physicians (treating outpatients and patients in old people’s homes) and five nursing homes [17] in the Netherlands between April 2003 and March 2005. Inclusion criteria for patients were: age over 65 years and use of an NSAID. Indications for prescription of NSAIDs were complaints of chronic pain in the loco motor system, arthritis, arthrosis or extra-articular disorders. Diagnostics were performed prior to the study. Patients were excluded when they were not able to give informed consent or in case of cognitive disorders such as dementia. At the time of this study only the conceptual Dutch guidelines on the prevention of NSAID gastropathy were available, in which the age limit was stated at 65 years instead of 70. Therefore, in this study patients were included who were older than 65 years of age.

Patients, who used NSAIDs without gastric protection or started NSAID treatment were prescribed pantoprazole 20 mg o.d. from the first day of the study. At inclusion, demographic data (age, sex, length, weight, smoking, use of alcohol and type of residence) and risk factors for gastro-intestinal damage (i.e. history of peptic ulcer, heart failure, diabetes, severe rheumatoid arthritis, high doses of NSAIDs, use of aspirin, anticoagulant drugs, corticosteroids or SSRIs), were collected by the treating physician. Patients were followed for a maximum period of 6 months. After 2 weeks, 3 months and 6 months gastrointestinal complaints (i.e. dyspepsia, heartburn, higher abdominal complaints, nausea and other possibly related complaints) were assessed, as well as side effects and alterations in the prescription of NSAIDs and/or pantoprazole. All patients had to give informed consent.

Statistical analyses

Differences between the three groups based on residency (outpatients, living in an old people’s home or in a nursing home) were analysed with χ²- and Mann–Whitney tests; while changes of GI symptoms in time were addressed with Wilcoxon Signed Ranks tests and McNemar tests. All statistical analyses were performed using SPSS package 12.0 for Windows (SPSS Inc., Chicago, IL).

Results

In the given period, 615 patients of 65 years or older contacted their physician with complaints of chronic pain in need of NSAID treatment and were included in the study. Since the study surveyed daily practice only, there is no reason to believe that patients who did not participate were different from the ones included in the study. Demographic data are shown in Appendix 1 in the supplementary data on the journal website (http://www.ageing.oxfordjournals.org/). At first consultation, 432 patients were already using an
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NSAID. From these patients, 269 used no gastric protection. A total number of 163 patients started using NSAIDs following consultation of the physician. In total, 432 patients started with pantoprazole and were followed.

Risk factors for NSAID gastropathy

Nursing home patients had significantly (P<0.001) more risk factors for gastro-intestinal problems (mean ± SD: 2.94 ± 1.3) than outpatients (1.77 ± 0.9) or patients living in old people’s homes (2.22 ± 0.9). Particularly heart failure, diabetes, use of anticoagulants, and use of SSRIs occurred more often in patients living in nursing homes (please see Appendix 2 in the supplementary data on the journal website (http://www.ageing.oxfordjournals.org/)). More than 60% of patients living in a nursing home had three or more risk factors, compared to 21% of outpatients and 30% of elderly patients living in old people’s homes (please see Appendix 3 in the supplementary data on the journal website (http://www.ageing.oxfordjournals.org/)). No difference could be observed, however, between the groups in prior prevalence of ulcers and more serious complications.

NSAID use prior to the study

Appendix 4 in the supplementary data on the journal website (http://www.ageing.oxfordjournals.org/) shows the use of NSAIDs at the first visit per type of residency. Of the remaining 183 patients, no records of prior NSAID use could be retrieved.

In 62.3% of all patients who used an NSAID, no gastro-intestinal prophylaxis was given. Especially in outpatients, prophylaxis was often not provided. In patients receiving NSAIDs prior to the study, NSAIDs were primarily prescribed for inflammatory arthritis (16.5%), degenerative arthritis (47.2%) and pain (29.4%).

Gastro-intestinal complaints

Patients already using NSAIDs without prophylaxis before entering the study, complained significantly more often (40%) of gastrointestinal symptoms like dyspepsia, reflux, pain in the epigastrium and nausea, than patients who newly started NSAID therapy (16%; P<0.001) (Figure 1). After 2 weeks of treatment with pantoprazole 20 mg, no difference could be observed between the two groups. Moreover, both groups showed a significant improvement of complaints during the study (P<0.001).

Side effects

Nine patients in the overall study population (3.1%) reported mild adverse events (e.g. nausea, headache) of the used NSAID or pantoprazole with an average of 1.1 adverse event per patient.

None of the patients showed severe gastrointestinal problems like bleeding or severe higher abdominal pain leading to hospitalisation.

Figure 1. Decrease of GI symptoms during the study. *P<0.001 NSAID prior to study versus new NSAID (consult 1). #P<0.001 t = 2 weeks versus t = 0 both groups.

Five patients died during the trial, but none of these deaths were assessed as being related to the study medication (NSAID or PPI).

Discussion and conclusion

This study clearly reveals that patients older than 65 years, living in nursing homes, have more risk factors for NSAID-gastropathy than elderly living independently or in old people’s homes. It is alarming that, contradictory to existing guidelines, in the majority of elderly patients with NSAIDs no adequate gastric protection is prescribed by the physician. There is a striking difference with regard to the extent of gastric prophylaxis in the studied settings. In nursing homes the majority (nearly 60%) received prophylaxis, whereas in outpatients this was the case in only 34% of patients.

This is an important finding, as on the one hand this study indicates that use of NSAIDs without gastric protection in the elderly is associated with a higher prevalence of GI-symptoms than when prophylaxis is prescribed, and on the other hand the study also shows that the Dutch national guidelines [2] regarding the use of NSAIDs and the prevention of gastric damage, have not been implemented to full extent yet. This is in line with the results of other Dutch studies [15,16]. Also in other countries the implementation of national guidelines gives us the same results [19]. Possible reasons for inappropriate prescription of gastric prophylaxis during NSAID use by general practitioners may be due to lack of accurate determination of the risks to develop NSAID-related GI-events, or simple a lack of alertness of the physician or inadequate patient follow-up [17]. The results of the present study indicate that gastric protection with pantoprazole leads to a significant decrease of GI symptoms in the elderly using NSAIDs, which is in agreement with earlier studies [20–22]. Moreover, no clinical manifestations of severe side effects of NSAIDs, such as bleeding, were observed in both groups.

A topic that has not been addressed in this study is the possibility that complications during the use of NSAIDs could also develop in the lower GI tract. Currently physicians
In conclusion, notwithstanding the fact that this study was not a randomised clinical trial, the importance of effective gastric protection during use of NSAIDs is evident and in fact should not be held back from our frail elderly, of which many are vulnerable for GI side effects of NSAIDs.

Key points
- Elderly people are still prescribed NSAIDs without gastric protection despite National Guidelines.
- Using a proton pump inhibitor diminishes gastric complaints possibly caused by NSAIDs.
- In a 6-month period no signs of serious complications were seen in the patient group using prophylaxis.

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Conflicts of Interest
This study is performed with support of ALTANA Pharma bv. There was no interference with the results.

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References
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‘Faster counting while walking’ as a predictor of falls in older adults

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Abstract

Objective: to establish whether changes in a spoken verbal task performance while walking compared with being at rest could predict falls among older adults.

Design: prospective cohort study of 12 months’ duration.

Setting: twenty-seven senior housing facilities.

Participants: sample of 187 subjects aged 75–100 (mean age 84.8 ± 5.2). During enrollment, participants were asked to count aloud backward from 50, both at rest and while walking and were divided into two groups according to their counting performance. Information on incident falls during the follow-up year was monthly collected.

Measurements: the number of enumerated figures while sitting on a chair and while walking, and the first fall that occurred during the follow up year.

Results: the number of enumerated figures under dual-task as compared to single task increased among 31.5% of the tested subjects (n = 59) and was associated with lower scores in MMSE (P = 0.034), and higher scores in Geriatric Depression Scale (P = 0.007) and Timed Up & Go (P = 0.005). During the 12 months follow-up, 54 subjects (28.9%) fell. After adjusting for these variables, the increase in counting performance was significantly associated with falls (adjusted OR = 53.3, P<0.0001). Kaplan–Meier distributions of falls differed significantly between subjects who either increased or decreased their counting performance (P<0.0001).

Conclusions: faster counting while walking was strongly associated with falls, suggesting that better performance in an additional verbal counting task while walking might represent a new way to predict falls among older adults.

Keywords: dual-task, falls, cognitive performance, older adults