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# GP management of osteoarthritic pain in Hong Kong

## Background

Limited information is available about general practitioners' knowledge, attitude and practice in treating osteoarthritis. This study sought to better understand GPs' management of mild to moderate osteoarthritis in Hong Kong.

## Methods

A cross sectional survey of GPs using a structured questionnaire mailed in three stages.

## Results

A total of 225 questionnaires were returned. Paracetamol was considered to be an analgesic with lower toxicity and cost, and fewer drug interactions than others; it was also seen to have poor efficacy, short duration of action, and low patient compliance. Most GPs would consider nonselective nonsteroidal anti-inflammatory drugs as first line treatment, followed by paracetamol. Cyclooxygenase-2 inhibitors, physiotherapy and exercise were favoured as second line treatments. Most GPs would choose paracetamol for patients with comorbid conditions.

## Discussion

General practitioners in Hong Kong have positive views on using simple analgesia and nonpharmacological treatments. Use of paracetamol was particularly preferred for older people and those with comorbidities.

■ **Osteoarthritis (OA) is the commonest form of arthritis. Its prevalence in Hong Kong among people aged 65 years and over is projected to rise from 12% in 2005 to 32.3% in 2050, and from 7.4 to 16.1% globally.<sup>1</sup> Joint symptoms and/or back pain were among the top 10 most common reasons for general practice consultations and nonurgent cases attending hospital accident and emergency departments in Hong Kong.<sup>2-3</sup> There is no cure for OA; treatment involves pain relief and prevention of further deterioration.**

Clinical guidelines have advocated nonpharmacological treatments (such as physiotherapy and weight control) to provide long term pain relief and maintain or improve joint mobility.<sup>4-8</sup> The authors have reviewed and updated these recommendations following the principles of evidence based medicine.<sup>4,9</sup> Key messages include the importance of communication with patients about treatment options, nonpharmacological measures as the cornerstone of management, and paracetamol as first line treatment.

Very few studies have investigated how GPs manage and treat OA of the knee patients. The current study aims to understand GPs' knowledge, attitude and practice in the management of mild to moderate osteoarthritis pain in Hong Kong. The results are useful not only for GPs in this region, but also in other countries.

## Methods

### Sampling frame and sample size

Sample size was estimated from a prior survey<sup>10</sup> which showed that 79% of GPs considered paracetamol as first line treatment for mild to moderate osteoarthritis pain. The required sample size was 255 doctors (with  $\alpha=0.05$  and margin of error=5%); 850 questionnaires were sent out with an expected response rate of 30%.

The sampling frame was based on a tertiary institution's continuing education program for GPs. Seven hundred and sixty-eight validated target doctors on that mailing list were sent a questionnaire and the

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**Table 1. Responses to questions about knowledge of OA symptoms, diagnosis and treatments**

Question (answer)	% correct
1. Osteoarthritis is a degenerative disease characterised by inflammation in the bone. (False)	45.5
2. Inflammation is a major factor at initial stage of OA. (False)	37.8
3. It is likely that a 60 year old patient with knee pain and osteophytes suffers from knee OA. (True)	92.3
4. To prevent further damage to the OA joint, patients should generally take more rest and do less exercise. (False)	74.1
5. Overweight OA patients should be recommended to lose weight. (True)	99.5
6. If adequate pain relief cannot be achieved by single NSAID, use of multiple NSAIDs should be tried. (False)	76.9
Median correct answers out of six (interquartile range)	4 (5.0–3.75)

**Table 2. Rating given to the common oral analgesics (with results of Wilcoxon sign rank test for equal median) and nonpharmacological treatments**

Common oral analgesics		Median (interquartile range)						Wilcoxon sign rank test for equal median		
Items	Rating choices	Paracetamol		Nonselective NSAIDs		COX-2 inhibitors		1 vs. 2	1 vs. 3	2 vs. 3
Efficacy	(poor=1, good=5)	2	(3–2)	4	(5–4)	4	(5–4)	$p<0.0001$	$p<0.0001$	NS
Toxicity	(severe=1, mild=5)	5	(5–5)	3	(3–2)	4	(4–3)	$p<0.0001$	$p<0.0001$	$p<0.0001$
Drug interaction	(severe=1, mild=5)	5	(5–4)	3	(4–3)	3	(4–3)	$p<0.0001$	$p<0.0001$	$p<0.0001$
Duration of action	(short=1, long=5)	2	(2.75–1.0)	3	(4–3)	4	(5–4)	$p<0.0001$	$p<0.0001$	$p<0.0001$
Patient compliance	(poor=1, good=5)	3	(4–2)	3	(4–3)	4	(5–4)	$p<0.005$	$p<0.0001$	$p<0.0001$
Cost	(expensive=1, cheap=5)	5	(5–5)	3	(4–3)	1	(2–1)	$p<0.0001$	$p<0.0001$	$p<0.0001$
Overall for long term use	(poor=1, good=5)	3	(4–2)	3	(4–3)	4	(4–3)	NS	$p<0.005$	$p<0.0001$
Nonpharmacological treatments		Dietary advice				Physiotherapy and exercise				
Items	Rating choices	Rating (cumulative %)				Rating (cumulative %)				
		=1	≤2	≤3	≤4	=1	≤2	≤3	≤4	
Effectiveness	(poor=1, good=5)	25.4	51.3	83.0	95.1	4.0	14.3	46.0	85.7	
Patient compliance	(poor=1, good=5)	26.3	59.4	89.3	97.8	12.4	41.3	77.8	96.0	

promise of a supermarket coupon with the survey results as incentive to participate. The mailing process consisted of three stages in early 2005. The questionnaire was resent to doctors who did not reply to a previous stage.

**Study instrument**

The questionnaire underwent face validation by two family medicine experts. The first part consisted of six true-false questions aiming to test respondents' knowledge about OA. The second part measured major factors affecting the doctors' attitude toward mild to moderate OA pain treatment. The last part focused on clinical experience and practice in mild to moderate OA treatment.

**Data analysis**

Nonparametric statistics, median and interquartile range were used to measure central tendency and dispersion, and Wilcoxon sign rank test and binomial test were used for hypothesis testing. SPSS 12.0 was used for data analysis.

**Results**

Two hundred and thirty-eight questionnaires were collected (171, 48 and 19 after the first, second and third stage respectively) with a response rate of 31%. Thirteen questionnaires were excluded because of missing values. Two hundred and twenty-five questionnaires were included in the final analysis.

Figure 1. Treatments considered for mild to moderate OA pain (multiple treatments could be selected)

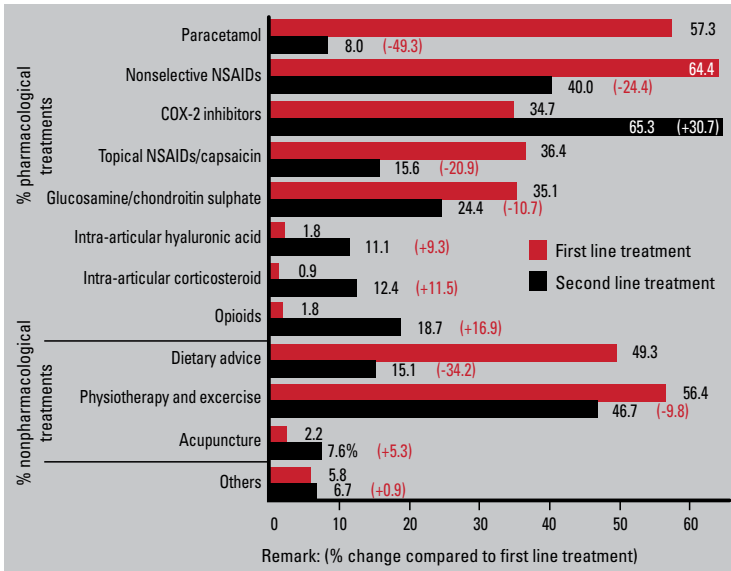


Figure 2. Choice of treatments in presence of different comorbidities

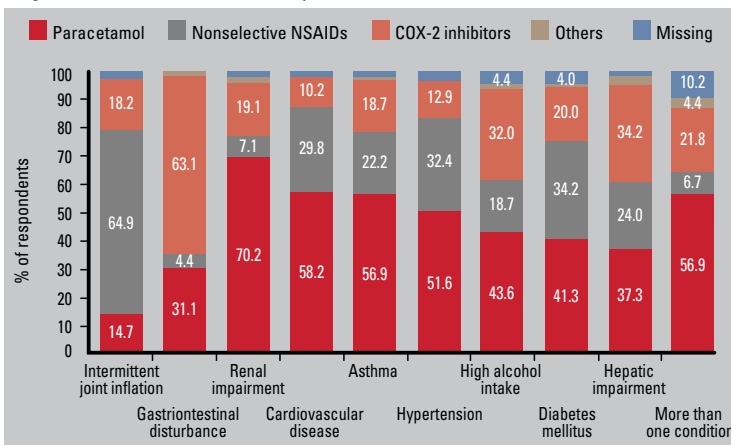


Table 3. Frequencies in using different treatments for mild to moderate OA pain

Treatment	Patients' age (years)	Median frequency of use (interquartile range)*		Wilcoxon sign rank test for equal median <50 years vs. ≥50 years
		<50	50≥	
Pharmacological treatments	Paracetamol	<50	8 (9–4)	$p \leq 0.05$
	Paracetamol	50≥	7 (9–4)	
	Nonselective NSAIDs	<50	8 (8–6)	$p \leq 0.001$
	Nonselective NSAIDs	50≥	6 (8–4)	
Nonpharmacological treatments	COX-2 inhibitors	<50	6 (8–4)	$p \leq 0.001$
	COX-2 inhibitors	50≥	8 (9–5)	
	Patient education	–	8 (10.0–6.5)	Age of patients not specified
	Dietary advice	–	7 (9–5)	
Physiotherapy and exercise	–	7 (9–5)		
Joint protection	–	5 (8–3)		
Use of assistive devices	–	5 (7–3)		
Acupuncture	–	1 (2–1)		

\* 1 = never, 10 = frequently

Table 1 demonstrates respondents' knowledge about OA. Fewer than 50% correctly answered the first two questions, which related to common misunderstandings about OA (median of 4 for overall correct answers).

Respondents' attitudes toward the three common analgesics and two selected nonpharmacological treatments are shown in Table 2. Nonselective nonsteroidal anti-inflammatory drugs (NSAIDs) and cyclooxygenase-2 (COX-2) inhibitors were believed to have higher, long lasting efficacy and better patient compliance than paracetamol, but were thought to be more expensive with higher toxicity and more drug interactions. The differences were statistically significant. Doctors felt that nonselective NSAIDs and COX-2 inhibitors shared similar efficacy (median of 4) but that COX-2 inhibitors were more expensive and toxic, but were longer lasting and better adhered to. More than half rated dietary advice '2 or below' in 'effectiveness' and 'patient compliance', and 85.7 and 58.7% gave a rating of '3 or above' for physiotherapy and exercise respectively (Table 2).

Figure 1 shows the frequencies of different first line treatments. Nonselective NSAIDs (64.4%) and paracetamol (57.3%) were found to be the main choice and COX-2 inhibitors the last choice (34.7%). When the first line treatment(s) failed, COX-2 inhibitors became the main second line treatment choice (Figure 1).

Paracetamol was the prime choice for patients with renal impairment, cardiovascular disease, asthma, hypertension, or multiple comorbid conditions (Figure 2). More than 60% of the respondents tended to prescribe COX-2 inhibitors in patients with gastrointestinal disturbance. Respondents preferred prescribing paracetamol and COX-2 inhibitors to older patients and nonselective NSAIDs to younger patients (Table 3).

Patient education, dietary advice, physiotherapy and exercise were the nonpharmacological treatments usually recommended for OA patients. Joint protection (eg. knee bracing, wedged insoles) or use of assistive devices (eg. cane) were recommended less frequently, and the score for acupuncture was the lowest (Table 3).

Table 4. Prescription of common analgesics for mild to moderate OA pain

Analgesics	Instruction	Duration		Row subtotal %	Binomial test (test proportion = 0.5)
		Less than 2 weeks %	2 weeks or longer %		
Paracetamol	Taken at regular intervals	32.1	5.6	37.8	$p \leq 0.001$
	On demand (if pain)	54.6	7.7	62.2	
Nonselective NSAIDs	Taken at regular intervals	42.4	2.9	45.4	NS
	On demand (if pain)	52.2	2.4	54.6	
COX-2 inhibitors	Taken at regular intervals	44.8	8.9	53.7	NS
	On demand (if pain)	38.9	7.4	46.3	

More than 80% of respondents preferred to prescribe analgesics for no longer than 2 weeks. Most respondents (62.2%) would suggest that patients take paracetamol on demand (if in pain), which was significantly different from 50–50 (binomial test for proportion=0.5,  $p < 0.001$ ). The proportions for nonselective NSAIDs (54.6%) and COX-2 inhibitors (46.3%) were not statistically significant from half (Table 4).

## Discussion

A number of techniques (such as resending of the questionnaire to nonresponders, and the use of both monetary and nonmonetary incentives) were used to increase response rate. It is not uncommon for postal surveys of GPs to have a response rate of 30%. This does limit the generalisability of the results.

Only around half of the respondents used dietary advice, physiotherapy and exercise as the first line treatment. Fewer than 50% recommended physiotherapy and exercise as second line treatment. Health practitioners do not routinely counsel patients about physical activities,<sup>11</sup> but GPs would discuss physical activity programs for patients with conditions that could benefit from exercise.<sup>12</sup> Therefore it is important to provide updated evidence on the benefits of exercise in OA management.

Respondents considered paracetamol as a safe, low cost drug with weak and short lived pain relieving power, while COX-2 inhibitors were seen to have higher efficacy, longer action and better patient compliance (but with higher toxicity and higher risk of drug interaction and also at a higher cost).

Compared with nonselective NSAIDs, a lower proportion of doctors would use COX-2 inhibitors as first line analgesics. There is no consistent evidence suggesting that COX-2 inhibitors are better than NSAIDs, or that one NSAID is superior to another in relieving pain.<sup>13–16</sup> Although COX-2 inhibitors have clearly been shown to have less glycemic index morbidity, both drugs act in a similar manner at the level of the kidney<sup>17–19</sup> and can impact on blood pressure.<sup>20–22</sup>

Cyclooxygenase-2 inhibitors were the only choice that was perceived to provide greater pain relieving power (compared with paracetamol) with lower toxicity (compared with nonselective NSAIDs). This could explain why COX-2 inhibitors were the most common second line treatment.

Fewer than half of the respondents correctly understood that OA is a degenerative disorder of synovial joints, with inflammation being intermittent and not the major factor in the early stages. It was unexpected that some patients with mild to moderate OA were given nonselective NSAIDs or COX-2 inhibitors as first line analgesic treatment before an adequate trial of paracetamol. This clinical decision making process was clearly not supported by European League Against Rheumatism evidence based guidelines<sup>8–9</sup> and findings from a number of n of 1 trials.<sup>23–24</sup> With a significantly lower proportion of doctors recommending paracetamol be taken at regular intervals, the efficacy of paracetamol was, unsurprisingly, perceived to be inferior.

This study reveals that GPs in Hong Kong do have positive views on using simple analgesia such as paracetamol and nonpharmacological treatments in OA, and are well aware of drug toxicity and interactions. If GPs and the public fully understand that OA is a chronic degenerative disease rather than an inflammatory disease, greater use of simple analgesia and nonpharmacological treatments can be encouraged in the primary care setting.

Conflict of interest: none declared.

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