

New Evidence 2006 – 2008: How should it modify current recommendations?

Weiya Zhang, Nottingham University, UK
Roland Moskowitz, Case Western Reserve University, USA



background

OARSI recommendations for the management of hip and knee osteoarthritis

- Part I: Critical appraisal of existing treatment guidelines and systematic review of current research evidence
- Part II: OARSI evidence-based, expert consensus guidelines

Zhang et al. OAC 2007;15:981-1000
Zhang et al. OAC 2008; 16:137-62



objectives

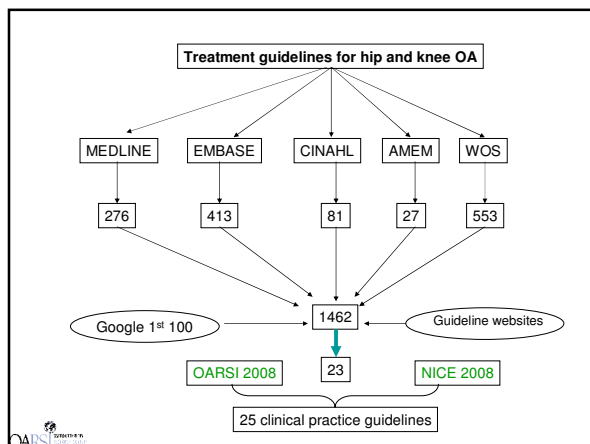
- to systematically review research evidence published since 31 Jan 2006
- to examine whether new evidence alters the recommendations



methods

- critical appraisal of the NICE and OARSI guidelines
- systematic review of new research evidence (2006 -)
 - best available evidence
 - meta-analysis
 - effect size (ES): 0.2=small, 0.5=moderate, >0.8=large
 - number needed to treat (NNT)
 - relative risk (RR) / Odds ratio (OR)
 - cost per quality adjusted life years (QALYs)

Zhang et al. OAC 2007;15:981-1000
The AGREE Collaboration: www.agreecollaboration.org
Oxman & Guyatt. J Clin Epidemiol 1991;44:1271-8
Jadad. Controlled Clin Trials 1996;17:1-12



guidelines and recommendations by 31 January 2006

Level of evidence	Frequency recommended in existing guidelines				
	<25%	25%-	50% -	75% -	100%
Ia	Ultrasound (1/5)	Chondroitin sulphate (2/7)	Heat/cice (7/10) Glucosamine sulphate (6/10) NSAID + H2 blockers (5/8)	NSAIDs (15/16) Insule (12/13) Braces (8/9) Topical capsaicin (8/9) IA HA (8/9) IA steroid (11/13) TENS (8/10) Topical NSAIDs (7/9)	Acrobic exercise (21/21) Strengthening exercise (21/21) Acetaminophen (16/16) Education (15/15) COX-2 inhibitors (11/11) Opioid (9/9) Self management (8/8) Water-based exercise (8/8) NSAID + PPI (8/8) NSAID + Misoprostol (8/8) Telephone (2/2)
Ib	Laser (1/6) Electrotherapy /EMG (1/8)	Nutrients (1/3)	Acupuncture (5/8) Massage (1/2) Diacerhein (1/2)	Weight loss (13/14) Patellar tape (12/13) Avocado soybean unsaponifiables (3/4)	Combination therapy (12/12) Joint lavage (3/3) Herbs (2/2)
III					TJR (14/14) Osteotomy (10/10)
IV	Oral steroid (0/2)			Arthroscopic debridement (5/6)	Cane/stick (11/11) Referral (5/5) Knee fusion (2/2) Knee aspiration (2/2)



guidelines and recommendations by 31 January 2008

Level of evidence	Frequency recommended in existing guidelines				
	<25%	25%-50%	50%-75%	75%-100%	
Ia	Ultrasound (1/6)	Chondroitin sulphate (3/9) Nutrients (1/4)	Acupuncture (6/10) Glucosamine sulphate (7/12) NSAID + H2 blockers (5/9) Diacerhein (2/3) Herbs (2/3)	NSAIDs (17/18) Weight loss (15/16) Insula (14/15) IA steroid (13/15) Braces (10/11) Topical capsaicin (10/11) TENS (10/12) IA HA (9/11) Topical NSAIDs (9/11) Headice (9/12) Avocado soybean unsaponifiables (3/4)	Aerobic exercise (23/23) Strengthening exercise (23/23) Acetaminophen (18/18) Education (17/17) COX-2 inhibitors (13/13) Opioid (11/11) Self management (10/10) Water-based exercise (9/9) NSAID + PPI (10/10) NSAID + Misoprostol (8/8) Telephone (3/3)
Ib	Laser (1/7) Electrotherapy /EMG (1/9)		Arthroscopic debridement (5/8) Joint lavage (9/5) Massage (1/2) Patellar resurfacing (1/2) Spa/sauna (1/2)	Patellar tape (12/13) Combination therapy (14/14)	
IIb			Radiotherapy (1/2)		
III				TJR (16/16) Osteotomy (11/11)	
IV	Oral steroid (0/2)		Antidepressants (1/2) Oestrogen (1/2)	Knee aspiration (2/3) Cane/stick (13/13) Referral (6/6) Knee fusion (3/3)	

new evidence

OARSI Treatment Guidelines – Summary of the literature search from 31 Jan 2006 to 31 Jan 2008

Database	Systematic reviews	RCTs	Economic evaluations
MEDLINE	60	482	117
EMBASE	116	689	204
AMED	12	17	13
Cochrane	10	218	-
HTA	15	-	-
NHS Economic Evaluation Database	-	-	31
Total (relevant)	57	200	16

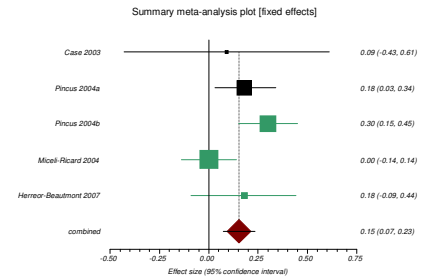
Same search strategy was used for MEDLINE, EMBASE and AMED (see Appendices).
The disease-specific search is, the term "osteoarthritis" was used for Cochrane, HTA and NHS economic evaluation databases. Any studies for osteoarthritis will be included for further scrutiny.

ES_{pain} (95%CI)

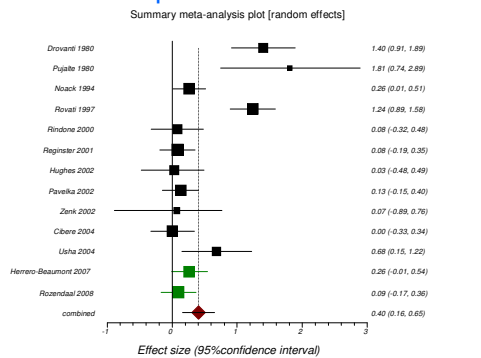
	By 31 January 2006	By 31 January 2008
Acupuncture	0.51 (0.23, 0.79), Ib	0.35 (0.15, 0.55), Ia
Weight reduction	0.13 (-0.12, 0.38), Ib	0.20 (0.06, 0.33), Ia
Electrotherapy/EMG	0.77 (0.36, 1.17), Ia	0.15 (-0.09, 0.39), Ia
Glucosamine sulphate	0.61 (0.28, 0.95), Ia	0.40 (0.15, 0.64), Ia
Chondroitin sulphate	0.52 (0.37, 0.67), Ia	0.68 (0.43, 0.93), Ia
ASU	NA, Ia	0.38 (0.01, 0.76), Ia
Acetaminophen (paracetamol)	0.21 (0.02, 0.41), Ia	0.15 (0.07, 0.23), Ia
NSAIDs	0.32 (0.24, 0.39), Ia	0.29 (0.22, 0.35), Ia
Topical NSAIDs	0.41 (0.22, 0.59), Ia	0.44 (0.27, 0.62), Ia
Opioids	NA, Ia	0.37 (0.23, 0.51), Ia
IA corticosteroid	0.72 (0.42, 1.02), Ia	0.55 (0.34, 0.75), Ia

Zhang et al OAC 2007;15:981-1000
Manheimer et al Ann Intern Med 2007;146:868-77
Christensen I et al ARD 2007;66:433-9
Christensen et al OAC 2008;16:399-408
McCarthy et al BMC MS disorders 2006;7:51
Bjordal et al Eur J Pain 2007;11:125-38
Haynes et al Clin Chiropractic 2007;10:128-38

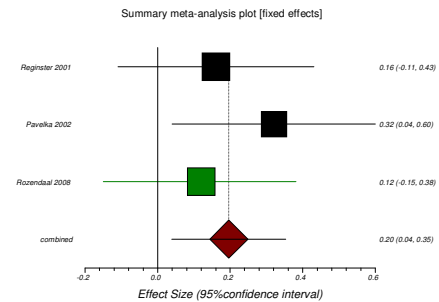
paracetamol -pain relief

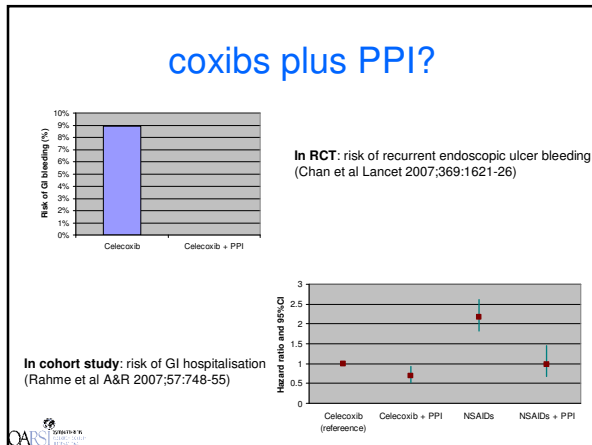
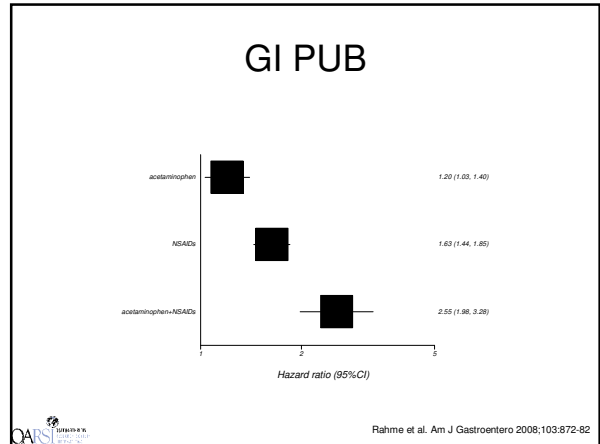
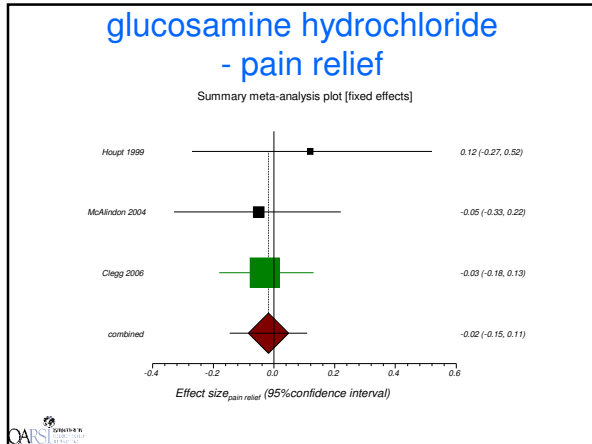


glucosamine sulphate - pain relief



glucosamine sulphate - structure modification





- ### summary
- two guidelines, 57 SRs, 300 RCTs and 16 EEs have been undertaken during Jan 2006 to Jan 2008
 - although core therapies for OA stays unchanged, level of evidence and agreement of recommendations slightly alter for other therapies
 - while the effect size of some therapies (paracetamol) reduces, others (eg, weight reduction and topical NSAIDs) increases with more evidence included
 - cardiovascular side effects of NSAIDs vary from drug to drug but caution must be taken for any of them, as the class effect can not be excluded.
 - continuous observation of new evidence is essential for the scientific quality and update of the OARSi recommendations