

ORIGINAL CONTRIBUTION

317 **Regulation of the tension of human chorionic vasculature by histamine and prostaglandin $F_{2\alpha}$**

CAROLYN W. QUIST, DO; ROBERT C. ADAMS, DO; EUGENE E. QUIST, PhD

The calcium dependence of potassium chloride, prostaglandin $F_{2\alpha}$, and histamine-induced contractions of human chorionic vasculature was investigated because of their possible role in fetoplacental circulation and the development of fetal distress.

BRIEF REPORTS

327 **The physical fitness of first-year osteopathic medical students**

JOHN C. LICCIARDONE, DO; R. DONALD HAGAN, PhD

This study identifies those variables that are most strongly predictive of fitness.

334 **Nociceptive considerations in treating with counterstrain**

MARK BAILEY, PhD; LORANE DICK, DO

The authors suggest an updated theoretical basis for somatic dysfunction involving nociceptive stimuli and examine the responses to counterstrain treatment.

REVIEW ARTICLE

343 **Acute severe asthma: Part 2. Current therapy**

ROBERT G. GARMON, DO; RICHARD B. ZEMENICK, DO

This article reviews some of the developments in the treatment of emergent acute severe asthma and looks at principles of ventilation management.

CLINICAL PRACTICE/LABORATORY MEDICINE

353 **Drug effects on laboratory values**

JOHN R. ZOND, DO

Clinicians should be alert to the effects some commonly prescribed drugs may have on laboratory test results.

continued on page 245

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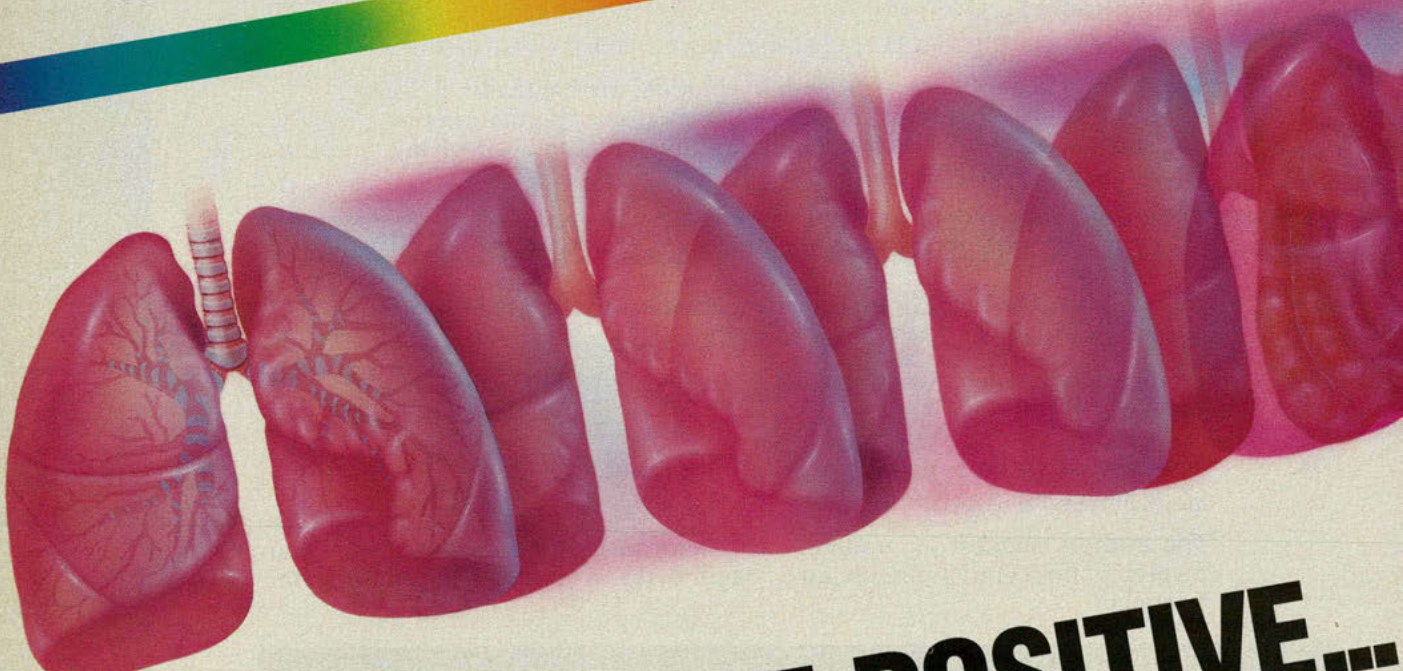
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The above in vitro data are available, but their clinical significance is unknown.
*Ceclor is indicated for the treatment of upper respiratory infections due to susceptible strains of *Streptococcus pyogenes* and for lower respiratory infections due to susceptible strains of *S. pneumoniae*, *H. influenzae*, and *S. pyogenes* (group A β -hemolytic streptococci).

[‡] Includes susceptible and moderately susceptible strains.
[†] 1990 national surveillance study of major respiratory pathogens.

[§] Isolates were obtained from respiratory fluids.



MINIMIZE THE NEGATIVE

Knowledge of the extent of GI absorption...allows prediction of the likelihood of GI side effects."³

95%

"...cefactor [is] almost completely absorbed [95%]...."⁴

1.4%

In clinical studies with cefactor, "diarrhea [was] reported by 1.4% of patients [113/8346]...."⁵

See adjacent page for brief summary of prescribing information.

1. Antimicrob Agents Chemother. 1990;34:2075-2080.
2. Eur J Clin Microbiol Infect Dis. 1990;9:685-691.
3. Clin Ther. 1991;13:189-193.
4. DICP, Ann Pharmacother. 1990;24:45-51.
5. Clin Ther. 1988;11(suppl A):63-72.

Lilly

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Brief Summary.

Consult the package literature for prescribing information.

Indications: Lower respiratory infections, including pneumonia, caused by *Streptococcus pneumoniae*, *Haemophilus influenzae*, and *Streptococcus pyogenes* (group A β -hemolytic streptococci).

Upper respiratory infections, including pharyngitis and tonsillitis, caused by *Streptococcus pyogenes* (group A β -hemolytic streptococci). **Note:** Penicillin is the usual drug of choice in the treatment and prevention of streptococcal infections, including the prophylaxis of rheumatic fever. Cefaclor is generally effective in the eradication of streptococci from the nasopharynx; however, substantial data establishing the efficacy of Cefaclor in the subsequent prevention of rheumatic fever are not available at present.

Contraindication: Known allergy to cephalosporins.

Warnings: CECLOR SHOULD BE ADMINISTERED CAUTIOUSLY TO PENICILLIN-SENSITIVE PATIENTS. PENICILLINS AND CEPHALOSPORINS SHOW PARTIAL CROSS-ALLERGENICITY. POSSIBLE REACTIONS INCLUDE ANAPHYLAXIS.

Administer cautiously to allergic patients.

Pseudomembranous colitis has been reported with virtually all broad-spectrum antibiotics. It must be considered in differential diagnosis of antibiotic-associated diarrhea. Colon flora is altered by broad-spectrum antibiotic treatment, possibly resulting in antibiotic-associated colitis.

Precautions:

- Discontinue Cefaclor in the event of allergic reactions to it.
- Prolonged use may result in overgrowth of nonsusceptible organisms.
- Positive direct Coombs' tests have been reported during treatment with cephalosporins.
- Cefaclor should be administered with caution in the presence of markedly impaired renal function. Although dosage adjustments in moderate to severe renal impairment are usually not required, careful clinical observation and laboratory studies should be made.
- Broad-spectrum antibiotics should be prescribed with caution in individuals with a history of gastrointestinal disease, particularly colitis.
- Safety and effectiveness have not been determined in pregnancy, lactation, and infants less than one month old. Cefaclor penetrates mother's milk. Exercise caution in prescribing for these patients.

Adverse Reactions: (percentage of patients)

Therapy-related adverse reactions are uncommon. Those reported include:

- Hypersensitivity reactions have been reported in about 1.5% of patients and include morbilliform eruptions (1 in 100). Pruritus, urticaria, and positive Coombs' tests each occur in less than 1 in 200 patients. Cases of serum-sickness-like reactions have been reported with the use of Cefaclor. These are characterized by findings of erythema multiforme, rashes, and other skin manifestations accompanied by arthritis/arthralgia, with or without fever, and differ from classic serum sickness in that there is infrequently associated lymphadenopathy and proteinuria, no circulating immune complexes, and no evidence to date of sequelae of the reaction. While further investigation is ongoing, serum-sickness-like reactions appear to be due to hypersensitivity and more often occur during or following a second (or subsequent) course of therapy with Cefaclor. Such reactions have been reported more frequently in children than in adults with an overall occurrence ranging from 1 in 200 (0.5%) in one focused trial to 2 in 8,346 (0.024%) in overall clinical trials (with an incidence in children in clinical trials of 0.055%) to 1 in 38,000 (0.003%) in spontaneous event reports. Signs and symptoms usually occur a few days after initiation of therapy and subside within a few days after cessation of therapy; occasionally these reactions have resulted in hospitalization, usually of short duration (median hospitalization = two to three days, based on postmarketing surveillance studies). In those requiring hospitalization, the symptoms have ranged from mild to severe at the time of admission with more of the severe reactions occurring in children. Antihistamines and glucocorticoids appear to enhance resolution of the signs and symptoms. No serious sequelae have been reported.
 - Stevens-Johnson syndrome, toxic epidermal necrolysis, and anaphylaxis have been reported rarely. Anaphylaxis may be more common in patients with a history of penicillin allergy.
 - Gastrointestinal (mostly diarrhea): 2.5%.
 - Symptoms of pseudomembranous colitis may appear either during or after antibiotic treatment.
 - As with some penicillins and some other cephalosporins, transient hepatitis and cholestatic jaundice have been reported rarely.
 - Rarely, reversible hyperactivity, nervousness, insomnia, confusion, hypertonia, dizziness, and somnolence have been reported.
 - Other: eosinophilia, 2%; genital pruritus or vaginitis, less than 1% and, rarely, thrombocytopenia and reversible interstitial nephritis.
- Abnormalities in laboratory results of uncertain etiology**
- Slight elevations in hepatic enzymes.
 - Transient lymphocytosis, leukopenia, and, rarely, hemolytic anemia and reversible neutropenia.
 - Rare reports of increased prothrombin time with or without clinical bleeding in patients receiving Cefaclor and Coumadin concomitantly.
 - Abnormal urinalysis: elevations in BUN or serum creatinine.
 - Positive direct Coombs' test.
 - False-positive tests for urinary glucose with Benedict's or Fehling's solution and Clinistest® tablets but not with Tes-Tape® (glucose enzymatic test strip, Lilly).

PA 8791AMP

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[021490U]

Additional information available to the profession on request from Eli Lilly and Company, Indianapolis, Indiana 46285.



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Coming in. . .

THE DO

Neurologic disorders will be explored in the April issue of *The DO*. Articles will describe investigational drugs for Alzheimer's disease, explain recent discoveries related to multiple sclerosis, and offer advice on treating the complications of Parkinson's disease.

The April issue also will include coverage of an invitational conference sponsored by the National Board of Osteopathic Medical Examiners. And March's personality profile will be on Rear Adm Hugh P. Scott, DO, the highest ranking osteopathic physician in the Navy.

Future issues of JAOA

- "The office diagnosis of lower extremity venous insufficiency and treatment with the use of nonprescription support hose"
- "Laterally transposed pelvis: A new and proper name for an old problem"
- "HIV testing: Update"
- "A clinical study of the osteopathic management of children with neurological or medical problems at the Osteopathic Center for Children"
- "Training medical students in behavioral medicine"
- "The physiologic role and clinical significance of reverse cholesterol transport"
- "The varied clinical presentations of meningococcal infection"
- "Autologous blood transfusion: Standard of care for the 1990s"
- "Intern orientation: Obstacle or opportunity?"
- "Parietal bone mobility in the anesthetized cat"
- "Lyme disease: A review"
- "Suggestions for diagnosing avascular necrosis of the hip in the 1990s"

CLINICAL PRACTICE/HIV DIALOGUES AND MANAGEMENT

370 **Clues for suspecting a patient is infected with the HIV**

LEONARD H. CALABRESE, DO; DAVID CONDOLUCI, DO

Some cutaneous conditions should increase the clinician's index of suspicion that a patient may have the HIV infection.

MEDICAL EDUCATION/PROGRAM DIRECTOR'S NOTEBOOK

376 **Case presentation as a teaching tool: Making a good thing better**

JOHN A. BROSE, DO

This overview includes suggested approaches for the "traditional" and "chunked" forms of case presentations.

SPECIAL COMMUNICATION

380 **National Cholesterol Education Program: Highlights of the Report of the Expert Panel on Blood Cholesterol Levels in Children and Adolescents**

NATIONAL HEART, LUNG, AND BLOOD INSTITUTE

EDITORIAL

268 **Physician, heal thyself,** THOMAS WESLEY ALLEN, DO

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COVER

A metered dose inhaler is used in the treatment of asthma. Beginning on page 343, Robert G. Garmon, DO, and Richard B. Zemenick, DO, review this and other modes of therapy used for the emergency treatment of acute severe asthma.

All opinions expressed in JAOA are those of the authors and not necessarily those of the editors, the AOA, or the institution with which the authors are affiliated, unless expressly stated. JAOA is indexed by *Index Medicus*, *Excerpta Medica*, *Current Contents (Clinical Practice)*, *Biological Abstracts*, and *Chemistry Abstracts*.

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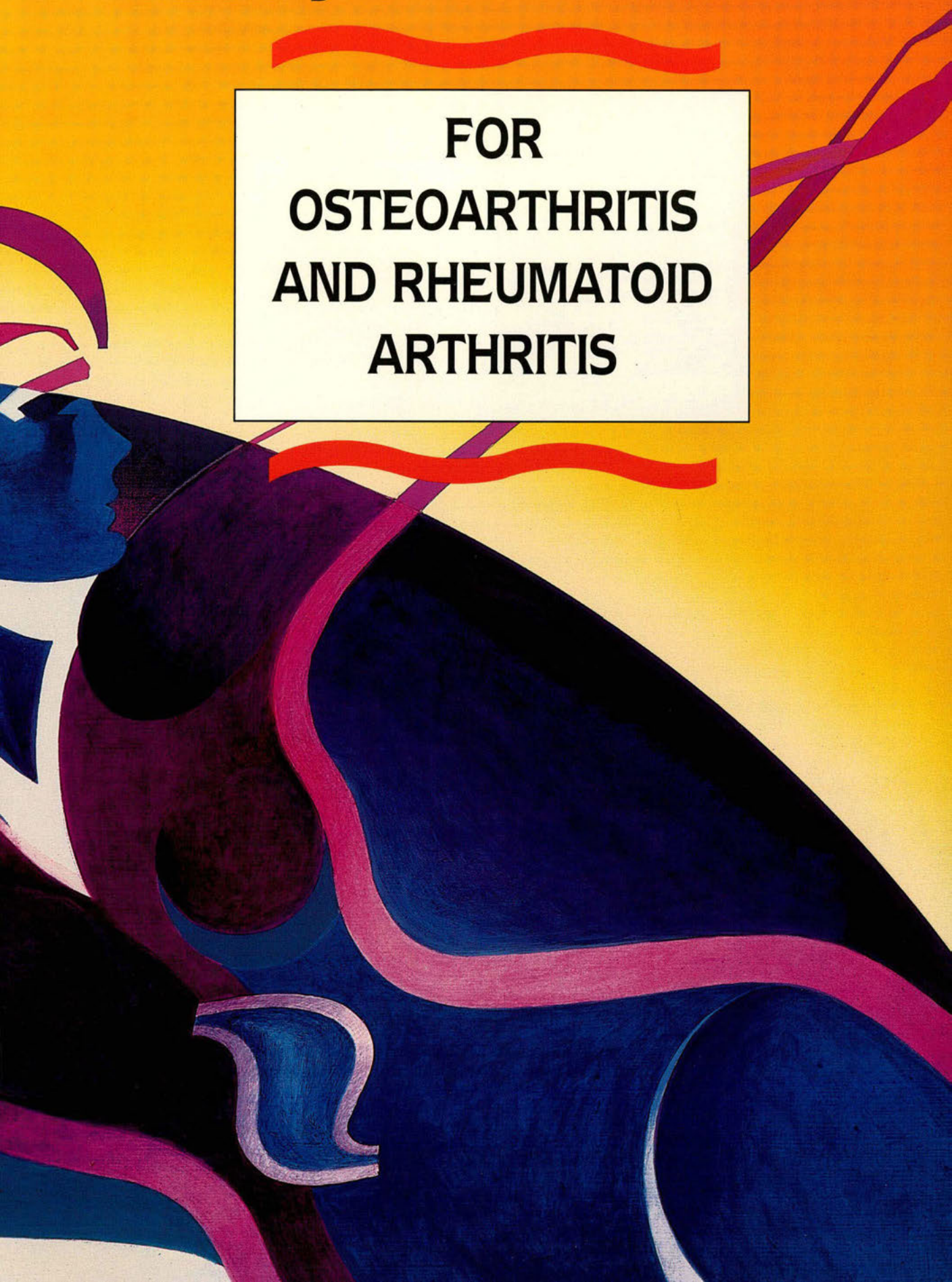
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A list of consultants who have reviewed manuscripts of JAOA in the previous year is printed in each December issue.

Announcing the first of a new NSAID class

**FOR
OSTEOARTHRITIS
AND RHEUMATOID
ARTHRITIS**



Announcing the first of a new NSAID class

NEW



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NABUMETONE

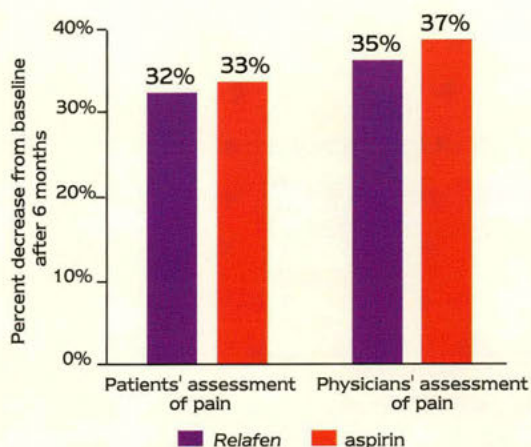
- Efficacy comparable to aspirin
- Convenient once-a-day dosing

For the treatment of osteoarthritis and rheumatoid arthritis

■ Efficacy comparable to aspirin in U.S. clinical trials¹

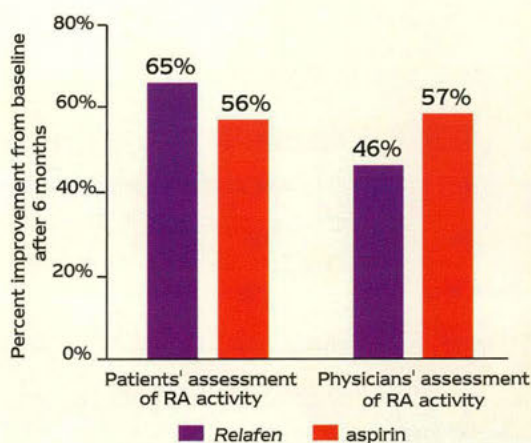
Relafen (1000 mg/day) is as effective
as aspirin (3600 mg/day)

In osteoarthritis¹



Double-blind comparative trial
of 332 patients.

In rheumatoid arthritis²



Double-blind comparative trial
of 228 patients.

Please see accompanying brief summary of prescribing information.

Arthritis treatment with a low incidence of peptic ulcers

A low incidence of peptic ulcers in
U.S. clinical studies of *Relafen* 1000 to 2000 mg/day

Time period	Cumulative incidence of peptic ulcers	95% confidence intervals	Number of patients*		
			1000 mg	1500 mg	2000 mg
3 to 6 months	0.3%	(0.0%, 0.6%)	1064	712	84
up to 1 year	0.5%	(0.1%, 0.9%)	833	614	69
up to 2 years	0.8%	(0.3%, 1.3%)	540	513	46

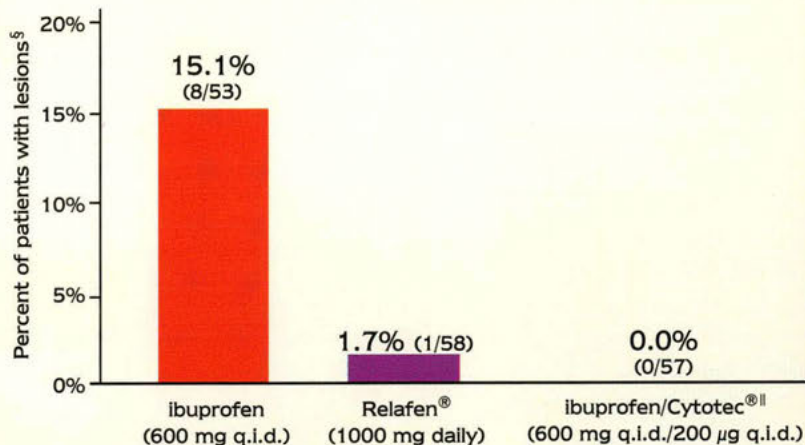
- Other G.I. symptoms comparable to other NSAIDs, including diarrhea (14%), dyspepsia (13%) and abdominal pain (12%)

*Patients may have been treated at more than one dosage level.



Lower incidence of endoscopic lesions[†] than ibuprofen^{‡2}

Three-month endoscopic comparison of Relafen®, ibuprofen and ibuprofen plus Cytotec® in 167 patients



[†]The trials were not designed to correlate symptoms and endoscopy scores. The clinical relevance of these endoscopy findings, i.e., either G.I. symptoms or serious G.I. events, is not known.

[‡] $P=0.013$.

[§] Lesions defined as >5 mm.

^{||} Cytotec® (misoprostol), G.D. Searle & Co.

NEW



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nabumetone

**For osteoarthritis
and rheumatoid arthritis**

Please see accompanying brief summary of prescribing information.

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- Evaluated in clinical studies with over 40,000 patients²
 - Available in over 15 countries
 - Eight years of worldwide clinical experience
- 



Convenient once-a-day dosing

- Usual starting dose 1000 mg/day, taken as two 500 mg tablets*



- Dosage can be titrated up to 2000 mg/day*
- Can be taken with or without food
- Food increases the rate but not the extent of absorption

* Please see dosage and administration section of accompanying brief summary of prescribing information.

NEW



RELAFEN[®]
nabumetone

**For osteoarthritis
and rheumatoid arthritis**

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a new NSAID class

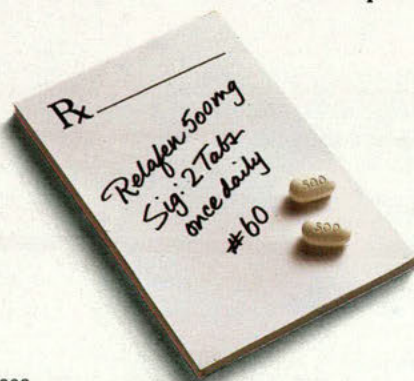
NEW



RELAFEN[®]
NABUMETONE

**For osteoarthritis and
rheumatoid arthritis**

- Efficacy comparable to aspirin
- Low incidence of peptic ulcers
- Other G.I. symptoms comparable to other NSAIDs, including diarrhea (14%), dyspepsia (13%) and abdominal pain (12%)
- Convenient once-a-day dosing
- Starting dose 1000 mg/day given as two 500 mg tablets
- Can be titrated up to 2000 mg/day



Please see accompanying
brief summary of prescribing
information.

SB
SmithKline Beecham
Pharmaceuticals

Philadelphia, PA 19101

RELAFEN®

brand of nabumetone

See complete prescribing information in SmithKline Beecham Pharmaceuticals literature or PDR. The following is a brief summary.

CLINICAL PHARMACOLOGY: *Relafen* is a nonsteroidal anti-inflammatory drug (NSAID) that exhibits anti-inflammatory, analgesic and antipyretic properties in pharmacologic studies. As with other nonsteroidal anti-inflammatory agents, its mode of action is not known. However, the ability to inhibit prostaglandin synthesis may be involved in the anti-inflammatory effect. The parent compound is a prodrug, which undergoes hepatic biotransformation to the active component, 6-methoxy-2-naphthylacetic acid (6MNA), a potent inhibitor of prostaglandin synthesis.

INDICATIONS AND USAGE: Acute and chronic treatment of signs and symptoms of osteoarthritis and rheumatoid arthritis.

CONTRAINDICATIONS: Patients (1) who have previously exhibited hypersensitivity to it; (2) in whom *Relafen*, aspirin or other NSAIDs induce asthma, urticaria or other allergic-type reactions.

WARNINGS: Remain alert for ulceration and bleeding in patients treated chronically, even in the absence of previous G.I. tract symptoms.

In controlled clinical trials involving 1,677 patients treated with *Relafen* (1,140 followed for one year and 927 for two years), the cumulative incidence of peptic ulcers was 0.3% at three to six months, 0.5% at one year and 0.8% at two years. Inform patients of the signs and symptoms of serious G.I. toxicity and what steps to take if they occur. In patients with active peptic ulcer, weigh the benefits of *Relafen* therapy against possible hazards, institute an appropriate ulcer treatment regimen and monitor the patients' progress carefully.

In considering the use of relatively large doses (within the recommended dosage range), anticipate benefit sufficient to offset the potential increased risk of G.I. toxicity.

PRECAUTIONS: Because nabumetone undergoes extensive hepatic metabolism, no adjustment of *Relafen* dosage is generally necessary in patients with renal insufficiency. However, as with all NSAIDs, monitor patients with impaired renal function more closely than patients with normal renal function.

Evaluate patients with symptoms and/or signs suggesting liver dysfunction, or in whom an abnormal liver test has occurred, for evidence of the development of a more severe hepatic reaction while on *Relafen* therapy. If abnormal liver tests persist or worsen, if clinical signs and symptoms consistent with liver disease develop, or if systemic manifestations occur (e.g., eosinophilia, rash, etc.), discontinue *Relafen*. Use *Relafen* cautiously in patients with severe hepatic impairment.

As with other NSAIDs, use *Relafen* cautiously in patients with a history of congestive heart failure, hypertension or other conditions predisposing to fluid retention.

Based on U.V. light photosensitivity testing, *Relafen* may be associated with more reactions to sun exposure than might be expected based on skin tanning types.

Physicians may wish to discuss with their patients the potential risks (see WARNINGS, PRECAUTIONS and ADVERSE REACTIONS) and likely benefits of NSAID treatment, particularly when the drugs are used for less serious conditions where treatment without NSAIDs may represent an acceptable alternative to both the patient and the physician.

Exercise caution when administering *Relafen* with warfarin since interactions have been seen with other NSAIDs. In two-year studies conducted in mice and rats, nabumetone had no statistically significant tumorigenic effect. Nabumetone did not show mutagenic potential in the Ames test and mouse micronucleus test *in vivo*. However, nabumetone- and 6MNA-treated lymphocytes in culture showed chromosomal aberrations at 80 mcg/mL and higher concentrations (equal to the average human exposure to *Relafen* at the maximum recommended dose). Nabumetone did not impair fertility of male or female rats treated orally at doses of 320 mg/kg/day before mating.

Pregnancy Category C: Nabumetone did not cause any teratogenic effect in rats given up to 400 mg/kg and in rabbits up to 300 mg/kg orally. However, increased post-implantation loss was observed in rats at 100 mg/kg orally and at higher doses (equal to the average human exposure to 6MNA at the maximum recommended human dose). There are no adequate, well-controlled studies in pregnant women. Use the drug during pregnancy only if clearly needed. Because of the known effect of prostaglandin-synthesis-inhibiting drugs on the human fetal cardiovascular system (closure of ductus arteriosus), use of *Relafen* during the third trimester of pregnancy is not recommended.

The effects of *Relafen* on labor and delivery in women are not known. As with other drugs known to inhibit prostaglandin synthesis, an increased incidence of dystocia and delayed parturition occurred in rats treated throughout pregnancy.

It is not known whether nabumetone or its metabolites are excreted in human milk; however, 6MNA is excreted in the milk of lactating rats. Because of the possible adverse effects of prostaglandin-synthesis-inhibiting drugs on neonates, *Relafen* is not recommended for use in nursing mothers.

Safety and efficacy in children have not been established. Of the 1,677 patients in U.S. clinical studies who were treated with *Relafen*, 411 patients (24%) were 65 years of age or older; 22 patients (1%) were 75 years of age or older. No overall differences in efficacy or safety were observed between these older patients and younger ones. Similar results were observed in a one-year, non-U.S. postmarketing surveillance study of 10,800 *Relafen* patients, of whom 4,577 patients (42%) were 65 years of age or older.

ADVERSE REACTIONS: Incidence $\geq$ 1%—Probably Causally Related—Diarrhea (14%), dyspepsia (13%), abdominal pain (12%), constipation, flatulence, nausea, positive stool guaiac, dry mouth, gastritis, stomatitis, vomiting, dizziness, headache, fatigue, increased sweating, insomnia, nervousness, somnolence, pruritus, rash, tinnitus, edema.

*Incidence of reported reaction between 3% and 9%. Reactions occurring in 1% to 3% of the patients are unmarked.

Incidence <1%—Probably Causally Related—Anorexia, cholestatic jaundice, duodenal ulcer, dysphagia, gastric ulcer, gastroenteritis, gastrointestinal bleeding, increased appetite, liver function abnormalities, melena, asthenia, agitation, anxiety, confusion, depression, malaise, paresthesia, tremor, vertigo, vasculitis, weight gain, bullous eruptions, photosensitivity, urticaria, pseudoporphyria cutanea tarda, dyspnea, abnormal vision, albuminuria, interstitial nephritis, angioneurotic edema.

Incidence <1%—Causal Relationship Unknown—Duodenitis, eruption, gallstones, gingivitis, glossitis, pancreatitis, rectal bleeding, acne, alopecia, erythema multiforme, Stevens-Johnson Syndrome, asthma, cough, azotemia, bilirubinuria, dysuria, hematuria, impotence, renal stones, taste disorder, fever, chills, angina, arrhythmia, hypertension, myocardial infarction, palpitations, syncope, thrombophlebitis, anemia, leukopenia, granulocytopenia, thrombocytopenia, hyperglycemia, hypokalemia, weight loss, nightmares.

†Adverse reactions reported only in worldwide postmarketing experience or in the literature are italicized.

OVERDOSAGE: If acute overdose occurs, empty the stomach by vomiting or lavage and institute general supportive measures as necessary. Activated charcoal, up to 60 grams, may effectively reduce nabumetone absorption. Co-administration of nabumetone with charcoal to man has resulted in an 80% decrease in maximum plasma concentrations of the active metabolite.

One overdose occurred in a 17-year-old female patient who had a history of abdominal pain and was hospitalized for increased abdominal pain following ingestion of 30 *Relafen* tablets (15 grams total). Stools were negative for occult blood and there was no fall in serum hemoglobin concentration. The patient had no other symptoms. She was given an H₂-receptor antagonist and discharged from the hospital without sequelae.

DOSAGE AND ADMINISTRATION: Recommended starting dose: 1000 mg taken as a single dose with or without food. Some patients may obtain more symptomatic relief from 1500 mg to 2000 mg daily. Dosages over 2000 mg daily have not been studied. Use the lowest effective dose for chronic treatment.

HOW SUPPLIED: Tablets: Oval-shaped, film-coated: 500 mg—white, imprinted with the product name RELAFEN and 500, in bottles of 100 and 500, and in Single Unit Packages of 100 (intended for institutional use only); 750 mg—beige, imprinted with the product name RELAFEN and 750, in bottles of 100 and 500, and in Single Unit Packages of 100 (intended for institutional use only).

Store at controlled room temperature (59° to 86°F) in well-closed container; dispense in light-resistant container.

500 mg 100's: NDC 0029-4851-20
500 mg 500's: NDC 0029-4851-25
500 mg SUP 100's: NDC 0029-4851-21

750 mg 100's: NDC 0029-4852-20
750 mg 500's: NDC 0029-4852-25
750 mg SUP 100's: NDC 0029-4852-21

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BRS-RL:12

References:

1. Apperlouth DJ, Baim S, Chang CW, et al: Comparison of the safety and efficacy of nabumetone and aspirin in the treatment of osteoarthritis in adults. *Am J Med* 1987;83 (suppl 4B):78-81.

2. Data on file, Medical Department, SmithKline Beecham Pharmaceuticals.

RL202

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Zostrix contains capsaicin which depletes substance P, a neurotransmitter known to exacerbate pain and inflammation in arthritic joints.² Through this mechanism, Zostrix provides pain control as monotherapy or enhances the efficacy of systemic regimens.

Zostrix Cream

(Capsaicin 0.025% w/w)

References

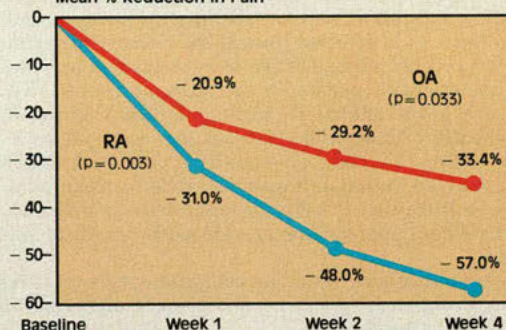
1. Enhanced pain control in patients with osteoarthritis and rheumatoid arthritis following treatment with topical capsaicin. Study Report #87-04. Data on file, GenDerm Corporation, Northbrook, IL 60062.
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Cream for Arthritis Pain

Effective in Both Osteoarthritis and Rheumatoid Arthritis

Double-blind, randomized,
placebo-controlled
multicenter trial (n = 101)¹

Mean % Reduction in Pain



Zostrix® (Capsaicin 0.025% w/w) Cream Topical Analgesic

Description: Zostrix Cream contains capsaicin, 0.025% w/w, in an emollient base containing benzyl alcohol, cetyl alcohol, glyceryl monostearate, isopropyl myristate, polyoxyethylene stearate blend, purified water, sorbitol solution and white petrolatum. Capsaicin is a naturally occurring substance derived from plants of the Solanaceae family with the chemical name trans-8-methyl-N-vanillyl-6-nonenamide. Capsaicin is a white crystalline powder with a molecular weight of 305.4. It is practically insoluble in water but very soluble in alcohol, ether and chloroform.

Action: Although the precise mechanism of action of capsaicin is not fully understood, current evidence suggests that capsaicin renders skin and joints insensitive to pain by depleting and preventing reaccumulation of substance P in peripheral sensory neurons. Substance P is thought to be

the principal chemomediator of pain impulses from the periphery to the central nervous system. In addition, substance P has been shown to be released into joint tissues and activate inflammatory mediators involved with the pathogenesis of rheumatoid arthritis.

Indication: Zostrix is indicated for the temporary relief of peripheral neuralgias such as the pain following shingles (herpes zoster). Zostrix is also indicated for the temporary relief of the pain associated with rheumatoid arthritis and osteoarthritis.

Warnings: FOR EXTERNAL USE ONLY. Avoid contact with eyes and broken or irritated skin. Do not bandage tightly. If condition worsens, or does not improve after 28 days, discontinue use of this product and consult your physician. **Keep this and all drugs out of the reach of children.** In case of accidental ingestion, seek professional assistance or contact a Poison Control Center immediately.

Directions: Adults and children 2 years of age and older: Apply Zostrix to affected area 3 to 4 times daily. Transient burning may occur upon application, but usually disappears in 72 hours. Application schedules of less than 3 to 4 times a day may not provide optimum pain relief and the burning sensation may persist. **Wash hands immediately after applying Zostrix.**

How Supplied:
1.5 oz tube (NDC 52761-552-45)
3.0 oz tube (NDC 52761-552-85)
Store at room temperature.
U.S. Patent Nos. 4486450 and 5536404

GenDerm Corporation
Lincolnshire, IL 60069

GENDERM®



BASF Group