

# **NSAID Side Effects**

# Non-Steroidal Anti-Inflammatory Drugs

Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) include the following:

- Acetaminophen
- Anacin
- Aspirin (salicylates)
- Bayer

- Bufferin
- Clinoril
- Cosprin
- Ibuprofen

- Indocin
- Indomethacin
- Motrin
- Piroxicam *etc.*.

#### **1. RENAL (KIDNEY) PROBLEMS**

NSAIDs block reactions in the kidney leading to a decrease in kidney function and possible kidney failure. Ninety percent of the patients who have died from kidney failure have been on NSAIDs (from a lecture by Dr. Stephen Paul).

#### **2. GASTROINTESTINAL PROBLEMS**

NSAIDs can cause a change in the cells of the intestinal wall and lead to a thinning of the wall. Proteins are then able to cross the intestinal wall and enter the bloodstream which can lead to allergy-like reactions. The allergic reactions can increase the production of natural chemicals (prostaglandins) that increase inflammation, allergic reaction, sensitivities, and pain. According to biochemist Dr. Jeffrey Bland PhD, the particles that cross the intestinal wall set off an immune reaction which results in the production of antibodies. The antibodies start a reaction that triggers the release of harmful substances (oxidants) which in turn can damage tissues.

#### **3. IMMUNE SYSTEM WEAKENING**

NSAID use may result in a decrease in lymph tissue of the small intestine (peyer's patches). This decreases lymph function and therefore increases the chance of immune compromise. The above-cited changes in the intestinal wall, along with subsequent protein leakage into the bloodstream can also lead to immune system problems.



With continual allergy and hypersensitivity, the immune system is overtaxed and exhausted. NSAID use can lead to a deficiency of vitamin C, vitamin A, the B Complex, B12, Folic Acid, Calcium, and vitamin K. Many of these nutrients are essential for the function of the immune system.

#### 4. NSAIDS BLOCK THE PRODUCTION OF FAVORABLE ANTI-INFLAMMATORY AGENTS (PROSTAGLANDINS)

The body produces substances called prostaglandins. Certain prostaglandins, by decreasing inflammation, are produced in the body to counteract the effects of tissue injury and therefore pain. NSAID use decreases the body's natural production of these beneficial factors.

Another group of prostaglandins increases the body's inflammatory response. NSAID use decreases this group. There is no way to predict or control the action of NSAIDs on the body's prostaglandin production. When NSAIDs are ingested, both the anti-inflammatory response and the inflammatory response may be inhibited.

### 5. BONE DESTRUCTION ASSOCIATED WITH NSAID USE

Acetabular bone destruction can be related to the use of NSAIDs according to an article in *Lancet*, July 6, 1985. The suggestion that indomethacin might accelerate bone destruction in osteoarthritis of the hip was first made by Coke in 1967. Also, NSAID use may interfere with the metabolism of articular cartilage and repair.

# 6. Sensitivity Reactions and Overdose Problems

### A. Motrin/Indocin

Upset stomach, stomach ulcer, dizziness, drowsiness, depression, fluid retention, headache, confusion, lack of coordination, appetite loss, fatigue, vaginal and or stomach bleeding, blood sugar problems, and hair loss. With prolonged use, they can cause eye damage, hearing loss, anemia, weight gain, and fever. Overdose can cause coma and stomach hemorrhage. Motrin can lead to liver problems and create deficiencies in the B complex and vitamin C. Indocin may aggravate mental problems such as depression, aggravate epilepsy, and Parkinsonism and cause blinding headaches.



# B. Salicylates (Aspirin)

Mild intoxication with salicylates can cause: nausea, vomiting, occasional diarrhea, hyperventilation, tinnitus, impaired hearing, headache, dizziness, dimmed vision, flushing, sweating, thirst, drowsiness, lassitude, and tachycardia.

Marked intoxication can cause: hyperventilation leading to respiratory alkalosis, metabolic acidosis (cyanosis, dyspnea, hyperpnea, hyperthermia), kidney damage, pronounced CNS stimulation ("salicylic jag" resembles alcoholic inebriation but without euphoria), followed by progressive depression (stupor, coma, respiratory failure).

Aspirin is an anti-vitamin to vitamin C and bioflavonoids which are crucially important for infection-fighting, for the health of joint cartilage, and for the strength of the capillaries. Aspirin can also lead to a deficiency of the following vitamins: A, B12, Folic Acid, calcium, and K.

Contra-indications for aspirin (salicylate) use are: pregnancy, labor, delivery, nursing, patients with gastric ulcers, asthma, allergies, on anticoagulant therapy, aspirin or salicylate hypersensitivities, high blood pressure, heart disease, diabetes, thyroid problems, vitamin K deficiency, or hypothrombinemia, liver or kidney disease. Salicylates are implicated in Reye's syndrome by depressing the fever, a condition that can lead to death in children.

Allergic reactions to aspirin may include; angioneurotic edema, asthma, coryza, purpura, and urticaria, among others.

#### <u>References:</u>

- Physicians' Desk Reference, 1984
- Drugs and Nursing Implications, Laura Govoni, Janice E. Hayes Charts International
- Keeping Healthy series of audio cassettes by Dr. Jeffrey Bland
- Degenerative Joint Disease lecture by Dr. Stephen Paul