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Benefits of NSAIDS

NSAIDs are non-steroid anti-inflammatory drugs such as over the counter (OTC) ibuprofen (Advil, Motrin) and naproxen (Naprosyn, Anaprox, Aleve) as well as prescription versions such as diclofenac (Voltaren), Mobic and others. NSAIDs are sometimes overlooked and underutilized in the management of chronic pain.

NSAIDs offer 2 benefits:

1. Pain relief for mild to moderate pain
2. Anti-inflammatory benefit for inflammation and arthritis

Pain relief: The NSAIDs are particularly effective for toothaches and other oral pain, often superior to opioids. They are also very effective for headaches, even when tylenol or opioids are not. For menstrual pain NSAIDs are frequently found to be more effective than opioids. Overall, NSAIDs are very effective in acute pain such as trauma and post-operative pain. Interestingly, there is recent research that suggests taking B vitamin complex with NSAIDs improves their pain relieving benefits. The mechanism for this benefit is unknown.

Inflammation: NSAIDs are perhaps best known for their effectiveness in treating arthritis pain because of their anti-inflammatory properties. NSAIDs also have a role in treating many sources of chronic pain. Since chronic pain is very often due at least in part to inflammation, the anti-inflammatory benefit of the NSAIDs can be very helpful. A common but under-appreciated source of arthritis pain is the facet joint in the spine which is the primary source of neck and back pain in as many as 40% of patients with chronic neck and back pain.

While the pain relief provided by the NSAIDs is generally fairly fast in onset – within an hour after a dose – the anti-inflammatory benefits may take as long as 2-4 weeks to take full effect and may require multiple doses/day. Failure to understand this leads to premature discontinuation of NSAIDs due to the incorrect conclusion that the NSAID offers no benefit after being taken only once or twice a day for brief time periods. It may be necessary to maintain regular dosing of an NSAID for at least 2-4 weeks before concluding the NSAID is ineffective.

Dosing of NSAIDs

Determining the best, or optimal, dose of an NSAID is based on a few variables. First, each person may respond differently to one NSAID vs. another. Secondly, one person may require higher doses than another to achieve the same benefit.

Genetic testing: Your physician may obtain genetic tests of your DNA by an oral swab of your cheek to help guide your NSAID management towards the best choice and dose of NSAID. Some people are slower than others to metabolize and eliminate NSAIDs from their system. These people may need to reduce their dose by 50-75% or more compared to usual doses of an NSAID in order to avoid higher risk of side effects. Ask your physician about genetic testing and NSAIDs.

Treating pain: The dose needed to reduce pain, particularly acute pain, is often less than the dose needed to reduce inflammation. For example, the maximum *analgesic (pain relieving)* dose of ibuprofen is 400mg. Thus, when taken for a toothache, if 400mg of ibuprofen doesn't provide relief, taking 800mg would not be expected to do so either. Taking higher doses in this case would only place one at greater risk of side effects with little expected greater pain relief.

Treating inflammation: With arthritis, the maximum *anti-inflammatory* dose is often higher – up to 800mg ibuprofen per dose, up to 4 doses/day. It may require at least two weeks of multiple daily doses to achieve full benefit.

So – how to determine the best dose when the NSAIDs are advised by your physician for chronic pain?

First, understand the basic principal regarding all medications: the optimal dose is the smallest dose that provides the maximum benefit (with no side effects). To determine the optimal dose, start your dosing low. In general, ibuprofen is considered one of the safest of the NSAIDs so start with ibuprofen (Advil, Motrin).

For short term or intermittent use, simply start with a 200mg dose (one OTC tablet) and if this is ineffective proceed to the 400mg dose. If the 400mg dose is ineffective, try a 600-800mg dose, but it is likely that you should find an alternative analgesic rather than continue taking more ibuprofen.

For managing chronic pain associated with inflammation, begin your dosing at 200mg every 6 hours (four times a day). Stay at this dose for a week or two, then make an assessment of the benefit achieved at this dosing. Then increase your dose to 400mg every 6 hours for another week or two. If increasing the dose from 200mg to 400mg did



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not provide additional benefit, go back to the 200mg dose. If the 400mg dose did provide additional benefit, proceed to the 600mg dose and repeat the process up to 800mg 4x/day.

Due to the many factors contributing to pain, it may be somewhat difficult to determine which dosing regimen works best. And the optimal dose may vary from time to time even in the same individual. But it is always best to maintain your dosing at the lowest dose that provides the most benefit.

Non-Steroid Anti-Inflammatory Drugs (NSAIDs)

Which NSAID is Best?

If "best" means the most effective, there is no definitive research to show that one NSAID is generally more effective than another. However, an individual may find one NSAID does work better than another so it doesn't hurt to experiment a little amongst the NSAIDs. Genetic testing may provide information for identifying the most effective NSAID for an individual.

If "best" means the safest, there is some evidence that celecoxib (Celebrex) is more likely to cause fewer stomach problems than other NSAIDs but the safety benefit does not seem to persist beyond six months of use. There is some conflicting evidence as to whether ibuprofen is safer than naproxen or vice-versa. With the exception of indocin which has been shown to have the highest rate of side effects, there is no definitive studies that otherwise confirm safety advantages of one NSAID over another.

The Safety of NSAIDs

GI: While the NSAIDs are usually quite safe, they can cause problems – most commonly nausea or abdominal pain, but sometimes ulcers or bleeding in the gastrointestinal tract that may result in black or tarry stools. People at higher risk for g.i. side effects include those with recent history of ulcers, smokers and those who use NSAIDs frequently (>10 doses/month). For those at higher risk, it is recommended that they also take a medicine to reduce stomach acid such as a PPI (e.g. prilosec, Nexium, Prevacid). PPIs are thought to be more effective than H2 blockers such as ranitidine (Zantac) or Pepcid. It may also be helpful to take NSAIDs with food although research suggests this may not be an effective strategy.

Kidneys: NSAIDs can also cause nephritis (inflammation in the kidneys), which may result in abdominal pain, back pain, blood in the urine and/or fever. If you develop any of these symptoms, discontinue NSAIDs and notify your physician. If you have any previous history of kidney disease, it may be best to avoid the NSAIDs.

Cardiovascular: Recent research has also determined that there is some increased risk of heart attack, stroke and high blood pressure associated with long term use of NSAIDs. If you are at increased risk for these conditions you may not be a good candidate for the use of NSAIDs and you should talk with your physician before taking NSAIDs.

I sometimes recommend that NSAIDs not be used daily for more than three months at a time. Taking NSAID "holidays" from time to time may be safer. I am not aware of any research studies that support this "holiday" approach but it appears intuitively safer.

Genetic Testing

Through the use of genetic testing via an oral saliva swab, it can be determined if you are a normal metabolizer of NSAIDs or not and this can provide important information to improve the safety of taking NSAIDs. For example, if it is determined that you are a slow metabolizer, lower doses may provide greater than average benefits but also greater likelihood of developing the side effects listed above. This especially applies to the use of high dose NSAIDs which would likely represent a significant risk to a slow metabolizer. Genetic testing also provides insights as to the likely potential benefits of NSAIDs such as in cardiovascular risk reduction. Discuss this with your physician.



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Aspirin and NSAIDs

Low dose aspirin is frequently advised as a protective measure against heart attack and/or stroke. The use of some NSAIDs may interfere with this benefit, especially ibuprofen, but Celecoxib (Celebrex) may not. It is advised to wait for 3-4 hours after taking your aspirin before taking an NSAID.

It is always important to weigh the benefits against the risks when taking any medications. Always discuss the use of NSAIDs with your physician.

If you have had an allergic reaction to aspirin or any of the NSAIDs, it is likely that you will also have an allergic reaction to any other NSAID - so all NSAIDs should be avoided.

Remember, in the battle against chronic pain, do not forget to include some of the simple solutions such as the NSAIDs, warm soaks and massage. While the NSAIDs may not have the immediate, dramatic impact that the narcotics do, in fact they may provide quite significant reduction in chronic pain when taken appropriately. Just stay at the smallest dose with the most benefit.