

### Pharmacological approaches:

Tricyclic antidepressants such as amitriptyline, nortriptyline and imipramine, are very old drugs but can be very effective in the treatment of chronic pain. These antidepressants work on different regions of the brain for pain, than they do for depression and their pain relief effect is through multiple mechanisms. They cause improvement in insomnia, anxiety and depression associated with pain. The most common side effects are drowsiness, dry mouth and urinary retentions. They have a delayed onset of action, which means that it takes four to five weeks for the tricyclic antidepressants to work.

Similarly, a new class of anti-depressants called Selective Serotonin Reuptake Inhibitors (duloxetine, venlafaxine and milnacipran) has been found very useful in management of chronic pain especially post-polio pain. Duloxetine is the most commonly used medication and helps to improve pain, fatigue and sleep disturbances. Adverse events commonly reported with the use of duloxetine include nausea, insomnia, dry mouth, and constipation, most of these tend to clear up with persistent use.

Anti-convulsants like gabapentin, pregabalin, lamotrigine and carbamazepine have been tried in chronic pain with variable results. Gabapentin is the most commonly used agent for nerve related pain and is usually very well tolerated. Side effects include dizziness, sedation and weight gain. Pregabalin is less sedative and does not have problem of weight gain as gabapentin. Lamotrigine and carbamazepine are rarely used because of their adverse side-effects profile.

Opioids (morphine, buprenorphine, oxycodone) are very strong analgesics and should never be used without specialist advice. Generally, they should be started as trial with proper documentation of the

treatment plan and outcomes. They should be titrated very slowly for therapeutic efficacy keeping the adverse effects to minimum. The most common side effects of opioids are: sedation, constipation, cognitive impairment, respiratory depression, hormonal imbalance, decreased immunity, dependence, tolerance and addiction.

Non-pharmacological therapies that may help to reduce pain in polio survivors are: patient education and advice regarding self-management, cognitive behaviour therapy, therapeutic exercise, aquatic based therapy and pain management programmes.

In conclusion improving body mechanics, correcting and minimizing postural and gait abnormalities and supporting the weak muscles and joints can improve pain in polio survivors. Muscle spasm and inflammation can be controlled with medications. Patients are encouraged to modify their lifestyle in order to reduce pain and improve their quality of life. Medications can be used in selected cases, balancing efficacy, safety and tolerability, with a view to reduce baseline pain and pain exacerbations.

### References:

**Werhagen and Borg.** Analysis of long-standing nociceptive and neuropathic pain in patients with post-polio syndrome. *J Neuro* 2010; 257(6): 1027-31.

**Willén and Grimby:** Pain, physical activity and disability in individuals with late effects of polio. *Arch Phys Med Rehabil* 1998; 79:915-919.

Further information and leaflets to be found on SPPN's website [www.sppn.org.uk](http://www.sppn.org.uk)  
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# Pain in Polio Survivors

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# Pain in Polio Survivors

We all know that acute pain is caused by an insult to the tissue and it has a protective function. If the acute pain persists for more than 3 to 6 months then the protective function is lost and it generally tends to degrade health and quality of life. Pain itself is very subjective in nature and the word “pain” connotes multiple meanings. The International Association for the Study of Pain (IASP) has therefore established a standardized definition of pain. The definition makes two very important points:

1. Pain is an unpleasant emotional experience as well as an unpleasant sensory experience.
2. Pain is always subjective. If patients regard their experience as pain and if they report it in the same ways as pain caused by tissue damage then it should be accepted as pain.

The appearance of generalized aches and pain is a common ageing phenomenon. However polio survivors experience deep muscle and joint pain problems at an accelerated rate as compared to the healthy individuals. Pain caused by any medical condition can occur in polio survivors but the commonest causes of pain are secondary to the changes in muscle and body mechanics.

## Causes of pain in polio survivors:

The different causes of pain in polio survivors can be classified as:

1. **Muscle pain**
2. **Soft tissue or overuse pain**
3. **Biomechanical or pain due to degenerative diseases**
4. **Bone pain**

**Muscle Pain:** This is the pain in the muscle tissue itself. It is most-commonly in polio-affected muscles. If the previous healthy muscles suddenly become painful, it means that they were polio affected in the first place and patient were not aware of this. Muscle pain is deep or superficial aching in nature and aggravated by physical activity, stress and cold. It is often worst at the end of the day or at night.

**Soft Tissue of Overuse Pain:** This type of pain is caused by injury or inflammation of the soft tissues (muscles, tendons, ligaments, bursa). This pain is caused by the excess stress on already weak muscles resulting in tissue damage and chronic inflammation. Weak muscles put extra strains over the ligaments, bursa and tendons due to altered biomechanics resulting in their inflammation and damage. Polio survivors can also experience classical myofascial pain syndrome characterized by muscle spasms and tightness.

## Biomechanical or pain due to degenerative diseases:

Due to the excessive strain over the polio affected muscles and joints as well as the normal muscles and joints, over time wear and tear in the joint develops which would eventually lead to joint deformity. Altered body mechanics put extra strain on the joints and thus adds to the deformity resulting in pain.

**Bone Pain:** Healthy bones develop due to normal muscle tension and stresses over the bones and joints. With a weak muscle the bone development is not normal and the affected bones are liable to osteoporosis and spontaneous fractures or fractures from a trivial trauma. Bone pain is again very common in polio survivors.

## Management of Pain in Polio Survivors:

The key to success in the management of pain in polio survivors is an integrated multidisciplinary approach in order to improve the quality of life, physical functioning and reduce psychological distress. The principals of managing different types of pain in polio survivors are outlined below.

### Muscle Pain:

- Modification of activities
- Pacing activities so that you have enough energy throughout the day
- Using good limb more often and preserve the affected limb
- Protect the affected muscle with a brace
- Learning to know your limits and listen to your body

### Soft Tissue Overuse Pain:

- Change of body mechanics with brace or support in order to alleviate excess stress
- Rest, ice and simple analgesia to alleviate pain
- Local steroid injections or surgery in selected cases

### Biomechanical or Pain due to Degenerative diseases:

- Strengthen the joints with appropriate physical activity in order to regain the range of movement
- Bracing or assistive devices in order to protect the affected joints and prevent the formation of deformities
- Surgery of the affected joints in selected cases

### Bone Pain:

- Early recognition of bone pain so that prevention could be started
- Treatment or prevention of osteoporosis
- Appropriate immobilization of fractures