Glatiramer – A novel alternative for multiple sclerosis

Nerve fibres inside and outside the brain are wrapped with layers of insulation called the myelin sheath, which permits electrical impulses to be conducted along the nerve fibres. Demyelination is a process by which the myelin sheath is damaged or destroyed. Multiple sclerosis (MS) is a disorder in which the nerves of the eye, brain and spinal cord lose patches of myelin due to inflammation and degeneration of the myelin sheath within the central nervous system.

Symptoms of MS include:
- Abnormal fatigue, stiffness, tremors
- Pain
- Vision problems
- Loss of balance and muscle coordination
- Slurred speech
- Bladder problems

The disease typically worsens slowly with time and affected people usually have periods of relatively good health (remissions), alternating with debilitating flare-ups.

Multiple sclerosis may be divided into four different disease subtypes:
- Relapsing-remitting multiple sclerosis (RRMS), characterised by acute neurological attacks, followed by a recovery, which is often complete.
- Secondary progressive multiple sclerosis (SPMS) starts as RRMS, but the frequency of attacks reduces and the disease course develops into a steady deterioration in function.
- Primary progressive multiple sclerosis (PPMS), characterised by a steady decline in function from the beginning of the disease.
- Progressive-relapsing multiple sclerosis (PRMS), which shows a progressive decline in function, with occasional acute attacks superimposed.

As a result, the selection of therapeutic agents for multiple sclerosis is not straightforward. Nonetheless, the interferons are considered the mainstay in the treatment of relapsing-remitting multiple sclerosis. Glatiramer is the first non-interferon to be approved for the treatment of MS.

Approved indication
Glatiramer acetate (Copaxone®) is indicated to reduce the frequency of relapses in patients with relapsing-remitting multiple sclerosis characterised by at least two acute attacks over the preceding two-year period.

Mode of action
Glatiramer is composed of four amino acids that are found in myelin basic protein. The mechanism of action for glatiramer is unknown. Glatiramer, also called co-polymer 1, is a disease-modifying agent that appears to have both immunomodulating and neuroprotective effects. It has a different mode of action to the interferons and is sometimes referred to as a ‘non-interferon’.

Dosage
Glatiramer therapy should be initiated by neurologists or experienced physicians. The recommended adult dose for treatment of relapsing-remitting multiple sclerosis is 20 mg administered by subcutaneous injection once daily. Patients may be instructed on self-injection techniques under professional healthcare supervision.

Evidence of efficacy
Glatiramer has reduced the occurrence of relapse in patients with relapsing-remitting multiple sclerosis. The results of studies suggest that the efficacy of glatiramer is similar to interferon beta-1b and interferon beta-1a. Results of a head-to-head clinical trial (the REGARD trial) of glatiramer acetate and interferon beta-1a in patients with relapsing-remitting multiple sclerosis found no significant difference in relapse rates in response to these treatments.

The early use of glatiramer acetate appears to be effective in reducing the absolute lesion burden and atrophy of functional cerebral tissue over the long term.

Precautions
Glatiramer is contraindicated in patients hypersensitive to glatiramer or mannitol and in pregnancy. There is no data on the use of glatiramer during lactation.

Major adverse effects
Injection site reactions are the most frequently reported adverse effects and have been reported in up to 82% of patients. The most frequently reported injection site reactions include erythema, pain, pruritus, oedema, inflammation and hypersensitivity.

A reaction associated with vasodilation (flushing), chest pain, dyspnoea, palpitations or tachycardia has been described as the immediate Post-Injection Reaction. At least one component of the reaction has been described by 41% of patients taking glatiramer.

Several other adverse events have been reported in clinical trials comparing glatiramer to placebo. Refer to the manufacturer’s prescribing information.

Drug interactions
There is no specific drug interaction data available. Since glatiramer is highly bound to plasma proteins, the potential exists for glatiramer to affect the binding of other protein bound substances. Close monitoring is required.

Cost: SEP (incl VAT)
Copaxone® 20 mg/pre-filled syringe: R6800.00/28
Distributed by Teva Pharmaceuticals (Pty) Ltd

Patient information
An injection reaction may occur within minutes of injection. Symptoms include vasodilation (flushing), chest pain, dyspnoea, palpitations or tachycardia. The symptoms are usually short-lived and resolve without treatment. If a severe adverse event occurs, the treatment should be stopped and the patient needs to contact the doctor immediately. It is best to initially administer the injection in the company of a friend or relative who is able to assist in the event of adverse effects occurring. Administer the injection at the same time each day. Don’t use the same injection site more than once a week.

Conclusion
The use of glatiramer may be recommended for patients with relapsing-remitting multiple sclerosis, who are responding sub-optimally to interferon beta-1b or who are experiencing side effects from its administration.

References:
3. Copaxone® Package Insert.

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