Neostigmine Methylsulfate Injection is a sterile solution containing the anti-cholinesterase agent neostigmine methylsulfate, a white crystalline powder. 

**Dosage and Administration**

- **Recommended dosage range is 0.03 mg/kg to 0.07 mg/kg for reversing non-depolarizing neuromuscular block when a second twitch is present:** 0.03 mg/kg by intravenous route (2.2)

Prior to the administration of Neostigmine Methylsulfate Injection, it is recommended to use a peripheral nerve stimulator to determine whether neostigmine methylsulfate should be administered or not. It should be administered by trained healthcare providers (2.1).

- **Bolus doses are administered according to the patient's response.**

- **Doses may be required. The recommended maximum total dose is 0.07 mg/kg or up to a total of 0.2 mg/kg.**

**Mechanism**

Neostigmine is an anticholinesterase agent, which reverses non-depolarizing neuromuscular block by inhibiting acetylcholinesterase. This enzyme is responsible for the breakdown of acetylcholine, allowing for the prolonged action of acetylcholine at the neuromuscular junction and restoration of muscle strength.

**Pharmacokinetics**

The observed volume of distribution is between 0.07 and 0.12 liter/kg following intravenous injection. After intravenous administration as a 2-minute infusion (infants 2 to 10 months old: 100 mcg/kg; children 1 to 6 years old: 150 mcg/kg; children 6 to 12 years old: 200 mcg/kg), the peak effect occurs at 5-30 minutes, with a mean peak concentration of 10-20 ng/mL. Neostigmine methylsulfate Injection is eliminated from the plasma with a mean half-life of 45 minutes. The observed elimination half-life is between 24 and 113 minutes following intravenous injection.

**Pregnancy**

There are no adequate or well-controlled studies of Neostigmine Methylsulfate Injection in pregnant women. It is not known whether Neostigmine Methylsulfate Injection can cause fetal harm when administered to a pregnant woman. Use Neostigmine Methylsulfate Injection during pregnancy only if the potential benefit justifies the potential risk to the fetus. Neostigmine methylsulfate should not be administered to pregnant women.

**Adverse Reactions**

- **Hypersensitivity reactions including anaphylaxis** have been reported with neostigmine. Ensure that appropriate medical support and equipment are available before administering neostigmine methylsulfate.

**Contraindications**

Neostigmine methylsulfate is contraindicated in patients with cholinergic crisis, myasthenia gravis, or other anticholinesterase-sensitive conditions. It should not be administered to patients with a history of asthma or bronchial hyperreactivity. Neostigmine methylsulfate is also contraindicated in patients with a known hypersensitivity to anticholinesterase agents.

**Precautions**

Neostigmine methylsulfate should be given cautiously to patients with cardiovascular disease, pulmonary disease, or a history of bronchial hyperreactivity. It should be used with caution in patients with bladder neck obstruction or prostatic hypertrophy, as it may cause premature delivery of the placenta.

**Side Effects**

The most common side effects of neostigmine methylsulfate are gastrointestinal disturbances, such as diarrhea, nausea, and vomiting. Other side effects may include headache, dizziness, and dysrhythmias. In rare cases, anaphylactic reactions may occur.

**Dosage Forms**

Neostigmine Methylsulfate Injection is available in the following dosage strength; 3 mg per 3 mL (1 mg per mL) in a single-dose prefilled syringe. Neostigmine Methylsulfate Injection is formulated with neostigmine methylsulfate, a white crystalline powder, chemically and microbiologically acceptable. It is intended for single use only and should be disposed of properly after use. It is recommended to use a peripheral nerve stimulator to determine whether neostigmine methylsulfate should be administered or not. It should be administered by trained healthcare providers.

**Adverse Reactions**

Neostigmine methylsulfate may cause adverse reactions such as gastrointestinal disturbances, including diarrhea, nausea, and vomiting. Other side effects may include headache, dizziness, and dysrhythmias. In rare cases, anaphylactic reactions may occur. Treatment should be discontinued if severe reactions occur.