1.6.1 Summary of Product Characteristics(SPC)

1. NAME OF THE MEDICINAL PRODUCT

KETAM (Ketamine Injection BP, 50 mg/ml)

2. QUALITATIVE AND QUANTITATIVE COMPOSITION:

Each ml contains:

Ketamine Hydrochloride BP equivalent to Ketamine…..50 mg

Benzalkonium Chloride solution BP……..0.02 % W/V

Water for Injection BP……QS

3. PHARMACEUTICAL FORM:

Injection

4. CLINICAL PARTICULARS:

4.1 Therapeutic Indications:

Ketam is recommended:as a sole anesthetic agent for diagnostics and surgical procedure that do not require skeletal muscle relaxation.ketam is best suited for short procedure but it can be used with additional doses for longer procedure.

For the induction of anesthesia prior to the administration of other general anesthetic agent.

To supplement low potency agents,such as nitrous oxide.

4.2 Posology and Method of administration

For intravenous infusion, intravenous injection or intramuscular injection.

Intravenous Infusion

A solution containing 1 mg/ml of ketamine in dextrose 5% or sodium chloride 0.9% is suitable for administration by infusion.

General Anaesthesia Induction

An infusion corresponding to 0.5 – 2 mg/kg as total induction dose.

Intravenous Route

The initial dose of Ketamine administered intravenously may range from 1 mg/kg to 4.5mg/kg (in terms of ketamine base).The average amount required to produce 5 to 10 minutes of surgical anaesthesia has been 2.0 mg/kg. It is recommended that intravenous

administration be accomplished slowly (over a period of 60 seconds). More rapid administration may result in respiratory depression and enhanced pressor response.

Intramuscular Route

The initial dose of Ketam administered intramuscularly may range from 6.5 mg/kg to 13 mg/kg (in terms of ketamine base). A low initial intramuscular dose of 4 mg/kg has been used in diagnostic manoeuvres and procedures not involving intensely painful stimuli. A dose of 10 mg/kg will usually produce 12 to 25 minutes of surgical anaesthesia.

4.3 Contraindications

Ketamine Hydrochloride is contraindicated to those whom a significant elevation of blood pressure would constitute a serious hazard and in those who have some shown hypersensitivity of the drug.

4.4 Special warning and Precautions for use.

WARNINGS:

Cardiac function should be continually monitored during the procedure in patients found to have hypertension or cardiac problems. Respiratory depression may occur with over dosage or too rapid a rate of administration of Ketamine Hydrochloride in which case supportive ventiliation should be employed.

PRECAUTIONS:

Ketamine Hydrochloride should be used only under the direction of physician experienced in administering general anesthetics. Because pharyngeal and laryngeal reflexes are usually active. Ketamine Hydrochloride should not be used in surgery or diagnostic procedures of the pharynx, larynx or bronchial tree. The intravenous dose should be administered over a period of 60 seconds.

Since an increase in cerebrospinal fluid pressure has been reported during anesthesia, Ketamine Hydrochloride should be used with specific caution in patients with preanesthetic elevated cerebrospinal fluid pressure. Respiratory depression may occur with overdosage of Ketamine Hydrochloride, in which case supportive ventiliation should be employed. Mechanical support of respiration is preferred to the administration of analeptics. The intravenous dose should be administered over a period of 60 seconds. More rapid

administration may result in transient respiratory depression or apnoea. In surgical procedures involving visceral pain pathways, Ketamine Hydrochloride should be supplemented with an agent which obtunds visceral pain. Use with caution in the chronic alcoholic and the acutely alcohol-intoxicated patient. When Ketamine Hydrochloride is used on an outpatient basis, the patient should not be released until recovery from anesthesia is complete and then should be accompanied by a responsible audit.

4.5 Interactions with other medicinal products and other forms of interaction

Prolonged recovery time may occur if barbiturates and /or narcotics are used concurrently with Ketamine Hydrochloride.

4.6 Pregnancy and Lactation

Pregnancy & Lactation:

Including obstetrics, use in such conditions is not recommended & has not been established.

4.7 Effects on ability to drive and use machines

Not known..

4.8 Undesirable effects

Cardiovascular :

Temporary elevation of blood pressure and pulse rate is frequently observed following administration of Ketamine hydrochloride. However hypotension and bradycardia have been reported. Arrhythmia has also occurred.

Respiration :

Depression of respiration or apnoea may occur following rapid intravenous administration of high doses of Ketamine Hydrochloride.

Ocular :

A slight elevation in intraocular pressure may also occur.

Psychological:

During recovery from anesthesia the patient may experience delirium characterized by vivid dreams (Pleasant and Unpleasant), with or without psychomotar activity. Manifested by confusion and irrational behaviour.

Neurological:

In some patient enhanced skeletal muscle tone may be manifested by tonic and clonic movements sometimes resembling seizures. Gastro intentional : Anorexia, nausea and vomiting have been observed. However these are minimal and not usually severe.

4.9 Overdose

Respiratory depression can result from an overdosage of Ketamine hydrochloride. Supportive Ventiliation should be employed. Ketamine Hydrochloride has a wide margin of safety : Several instances of unintentional administration of overdoses of Ketamine Hydrochloride (upto 10 times that usually required) have been followed by prolonged but complete recovery.

5. PHARMACOLOGICAL PROPERTIES:

5.1 PHARMACODYNAMIC PROPERTIES

Pharmacotherapeutic Group: Anesthetic

ATC code: N01AX03

5.1.2 Mechanism of action

Ketamine hydrochloride is a non barbiturate anesthetic chemically designated dl 2-(o-chlorophenyl)-2-(methylamino) cyclohexanone hydrochloride action : ketamine hydrochloride is rapid-acting general anesthetic producing an anesthetic state characterised by profound analgesia, normal pharyngeal-laryngeal reflexes, normal or slightly enhanced skeletal muscle tone, cardiovascular and resipiratory stimulations and occasionaly a transient and minimal respiratory depression. A patent airway is maintained partly by virtue of unimpaired pharyngeal-laryngeal reflexes. The anesthetic state produced by ketamine hydrochloride been termed “dissociative anesthesia” in that it appears to selectively interrupt association pathways of the brain before producing sometimes sensory blockade. It may selectively depress the thalamoneocortical system before significantly obtunding the more ancient cerebral centers and pathways.

5.1.3 Pharmacodynamic effects

Ketam is a rapidly acting general anaesthetic for intravenous or intramuscular use with a distinct pharmacological action. Ketamine hydrochloride produces dissociative anaesthesia characterised by catalepsy, amnesia, and marked analgesia which may persist into the recovery period. Pharyngeal-laryngeal reflexes remain normal and skeletal muscle tone may be normal or can be enhanced to varying degrees. Mild cardiac and respiratory stimulation and occasionally respiratory depression occur.

5.2 PHARMACOKINETIC PROPERTIES

Absorption

Ketam is rapidly absorbed. Mean C_{max} is 0.75 mcg/mL. T_{max} is 1 h.

Distribution

Distribution half-life is approximately 10 to 15 min.

Metabolism

Undergoes N-dealkylation, hydroxylation of cyclohexone ring, conjugation with glucuronic acid, and dehydration of the hydroxylated metabolites to form the cyclohexene derivative. The metabolite is about one-third as active as ketamine.

Elimination

The beta phase half-life of ketamine is 2.5 h. Approximately 91% is excreted in urine and 3% in feces.

5.3 Preclinical safety data

Not Known.

6. PHARMACEUTICAL PARTICULARS:

6.1 List of excipients

1. Benzalkonium Chloride Solution (50%) BP
2. Sodium Chloride BP
3. Water For Injections BP

6.2 Incompatibilities

Not applicable.

6.3 Shelf life

24 months from the date of manufacture.

6.4 Special precautions for storage

Store below 30° C, protected from light.

6.5 Nature and contents of container

Ketam Injection BP, 50 mg/ml is packed in USP Type I 10 ml amber glass vial containing clear, colourless solution, plugged with grey butyl rubber plugs and sealed with yellow colour flip off aluminium seal. Each vial is labeled and packed in mono carton with a package insert

6.6 Instructions for use and handling

Keep out of reach of children.

7.MARKETING AUTHORISATION HOLDER

KILITCH DRUGS (INDIA) LTD.

Plot no- C-301/2, M.I.D.C T.T.C, Industrial Area, Pawane Village, Navi Mumbai - 400 705, Maharashtra, INDIA.

8. MARKETING AUTHORISATION NUMBER(S) :

Manufacturing Licence of Kilitch Drugs (India) Ltd. is KD/215.

9. DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION:

Date of first authorization: 2004.

The License has been renewed from 01/01/2017 to 31/12/2021.

10. DATE OF REVISION OF THE TEXT:

Not Applicable

The Summary of Product Characteristics (SPC) is satisfactory.

11. DOSIMETRY (IF APPLICABLE):

Not Applicable

12. INSTRUCTIONS FOR PREPARATION OF RADIOPHARMACEUTICALS (IF APPLICABLE):

Not Applicable