

JFL LIFESCIENCES LTD. 615, KERALA GIDC (BAVLA), DIST.: AHMEDABAD-382220		
Product Name	AFROFRANIL	
Generic Name	Clomipramine Tablets 25 mg	

1.3 Product Information

1.3.1 Summary of Product Characteristics (SmPC)

1. Name of the medicinal product

1.1 Name of the medicinal product

AFROFRANIL (Clomipramine Tablets 25 mg)

1.2 Strength

Each Sugar Coated Tablet Contains:

Clomipramine Hydrochloride BP.....25 mg

Excipients..... Q.S.

Colour: Approved colour used.

1.3 Pharmaceutical Form

Oral Sugar Coated Tablet

2. Qualitative and Quantitative Formula

Batch Size: 1,00,000 Tablets

Sr. No.	Ingredient	Specification	Label Claim (in mg)	Overages	Qty./Tab (in mg)	Qty./Batch (in Kg)	Function
DRY MIXING							
1.	Clomipramine Hydrochloride	BP	25.00	--	25.00	2.50	Active
2.	Lactose	BP	--	--	16.439	1.643	Diluent
3.	*Maize Starch	BP	--	10.0 %	14.467	1.591	Glidant
4.	Sodium Starch Glycolate	BP	--	--	1.315	0.131	Disintegrant
PASTE PREPARATION							
5.	Sodium Methyl Paraben	BP	--	--	0.197	0.019	Preservative
6.	Sodium Propyl Paraben	BP	--	--	0.020	0.002	Preservative
7.	*Maize Starch	BP	--	10.0 %	1.973	0.217	Binder
8.	Purified Water	BP	--	--	Q.S.	Q.S.	Vehicle
LUBRICATION							
9.	Purified Talcum	BP	--	--	1.973	0.197	Glidant
10.	Magnesium Stearate	BP	--	--	0.658	0.066	Lubricant

JFL LIFESCIENCES LTD. 615, KERALA GIDC (BAVLA), DIST.: AHMEDABAD-382220		
Product Name	AFROFRANIL	
Generic Name	Clomipramine Tablets 25 mg	

11.	Sodium Starch Glycolate	BP	--	--	1.315	0.131	Lubricant
12.	Aerosil	BP	--	--	0.329	0.033	Disintegrant
13.	Cross Povidone	BP	--	--	1.315	0.131	Lubricant
COATING							
14.	Calcium Carbonate	BP	--	--	4.643	0.464	Filler
15.	Purified Talcum	BP	--	--	3.317	0.332	Ant adherent
16.	Titanium Dioxide	BP	--	--	0.166	0.017	Colourant
17.	Gum Acacia	BP	--	--	0.332	0.033	Film former
18.	Gelatin	BP	--	--	0.531	0.053	Coater
19.	Sugar	BP	--	--	20.945	2.094	Coater
20.	Carnauba Wax	BP	--	--	0.066	0.006	Coater
21.	Purified Water	BP	--	--	Q.S.	Q.S.	Vehicle
Average weight of Core Tablet					65.00 mg	--	
Average weight of Sugar Coated Tablet					95.00 mg	--	
Total weight of Core Tablet					--	6.66 kg	
Total weight of Sugar Coated Tablet					--	9.66 kg	

Note: * Added 10 % extra to compensate loss on drying.

3. Pharmaceutical form

Buff coloured circular shaped, biconvex sugar coated tablets plain on both sides.

4. Clinical particulars:

4.1 Therapeutic Indication:

Adults

Clomipramine tablets are indicated for the treatment of:

- the symptoms of depressive illness especially where sedation is required
- obsessional and phobic states
- adjunctive treatment of cataplexy associated with narcolepsy.

Children and adolescents

- In children and adolescents, there is not sufficient evidence of safety and efficacy of clomipramine in the treatment of depressive states, phobias and cataplexy associated with narcolepsy.
- The use of clomipramine in children and adolescents (0-17 years of age) in these indications is therefore not recommended.

JFL LIFESCIENCES LTD. 615, KERALA GIDC (BAVLA), DIST.: AHMEDABAD-382220		
Product Name	AFROFRANIL	
Generic Name	Clomipramine Tablets 25 mg	

4.2 Posology and method of administration:

Before initiating treatment with clomipramine, hypokalaemia should be treated.

After a response has been obtained, maintenance therapy should be continued at the optimum dose to avoid relapse. Patients with a history of recurrence require maintenance treatment for a longer duration. Duration of maintenance treatment and need for further treatment should be reviewed periodically.

As a precaution against possible QTc prolongation and serotonergic toxicity, adherence to the recommended doses of clomipramine is advised and any increase in dose should be made with caution if drugs that prolong QT interval or other serotonergic agents are co-administered.

Abrupt discontinuation of clomipramine therapy should be avoided because of possible withdrawal symptoms. Therefore, dosage should be stopped gradually after regular use for long duration and the patient should be monitored carefully when clomipramine therapy is discontinued.

Adults

Oral – 10 mg/day initially, increasing gradually to 30-150 mg/day, if required, in divided doses throughout the day or as a single dose at bedtime. Many patients will be adequately maintained on 30-50 mg/day. Higher doses may be needed in some patients, particularly those suffering from obsessional or phobic disorders. In severe cases this dosage can be increased up to a maximum of 250 mg per day. Once a distinct improvement has set in, the daily dosage may be adjusted to a maintenance level of about 50-100 mg.

Elderly

Elderly patients generally show a stronger response to clomipramine than patients of intermediate age groups, clomipramine should be used with caution in elderly patients and doses should be increased cautiously. The initial dose should be 10 mg/day, which may be increased with caution under close supervision to an optimum level of 30-75 mg daily which should be reached after about 10 days and then maintained until the end of treatment.

Paediatric population

Not recommended.

Obsessional/phobic states

The maintenance dosage of clomipramine is generally higher than that used in depression. It is

JFL LIFESCIENCES LTD. 615, KERALA GIDC (BAVLA), DIST.: AHMEDABAD-382220		
Product Name	AFROFRANIL	
Generic Name	Clomipramine Tablets 25 mg	

recommended that the dose be built up to 100-150 mg clomipramine daily, according to the severity of the condition. This should be attained gradually over a period of 2 weeks starting with 1 x 25 mg clomipramine daily. In elderly patients and those sensitive to tricyclic antidepressants a starting dose of 1 x 10 mg clomipramine daily is recommended. Again where a higher dosage is required the sustained-release 75 mg formulation may be preferable.

Adjunctive treatment of cataplexy associated with narcolepsy

(Oral treatment): 10-75 mg daily. It is suggested that treatment is commenced with 10 mg clomipramine daily and gradually increased until a satisfactory response occurs. Control of cataplexy should be achieved within 24 hours of reaching the optimal dose. Where necessary, therapy may be combined with tablets up to the maximum dose of 75 mg per day.

Treatment discontinuation

Abrupt withdrawal should be avoided because of possible adverse reactions. If the decision is made to discontinue treatment, medication should be tapered, as rapidly as is feasible, but with recognition that abrupt discontinuation can be associated with certain symptoms for a description of the risks of discontinuation of clomipramine.

Renal impairment

Clomipramine should be given with caution in patients with renal impairment.

Hepatic impairment

Clomipramine should be given with caution in patients with hepatic impairment.

Method of administration

For oral use.

4.3 Contraindications

- hypersensitivity to the active substance, or to any of the excipients listed in formulation or cross-sensitivity to tricyclic antidepressants of the dibenzazepine group
- recent myocardial infarction, any degree of heart block or other cardiac arrhythmias
- severe liver disease
- concurrent administration with monoamine oxidase inhibitors or within 3 weeks of start or cessation of therapy.
- concomitant treatment with selective, reversible MAO-A inhibitors, such as moclobemide

JFL LIFESCIENCES LTD. 615, KERALA GIDC (BAVLA), DIST.: AHMEDABAD-382220		
Product Name	AFROFRANIL	
Generic Name	Clomipramine Tablets 25 mg	

-narrow-angle glaucoma

-retention of urine

-mania.

4.4 Special warnings and precautions for use:

Suicide/suicidal thoughts or clinical worsening

Depression is associated with an increased risk of suicidal thoughts, self-harm and suicide (suicide-related events). This risk persists until significant remission occurs. As improvement may not occur during the first few weeks or more of treatment, patients should be closely monitored until such improvement occurs. It is general clinical experience that the risk of suicide may increase in the early stages of recovery.

Other psychiatric conditions for which clomipramine is prescribed can also be associated with an increased risk of suicide-related events. In addition, these conditions may be co-morbid with major depressive disorder. The same precautions observed when treating patients with major depressive disorder should therefore be observed when treating patients with other psychiatric disorders.

Patients with a history of suicide-related events, or those exhibiting a significant degree of suicidal ideation prior to commencement of treatment are known to be at greater risk of suicidal thoughts or suicide attempts, and should receive careful monitoring during treatment. A meta-analysis of placebo-controlled clinical trials of antidepressant drugs in adult patients with psychiatric disorders showed an increased risk of suicidal behaviour with antidepressants compared to placebo in patients less than 25 years old.

Close supervision of patients and in particular those at high risk should accompany drug therapy especially in early treatment and following dose changes. Patients (and caregivers of patients) should be alerted about the need to monitor for any clinical worsening, suicidal behaviour or thoughts and unusual changes in behaviour and to seek medical advice immediately if these symptoms present.

Patients with depressive disorders, both adult and paediatric, may experience worsening of depression and/or suicidality or other psychiatric symptoms, whether or not they are taking antidepressant medication.

JFL LIFESCIENCES LTD. 615, KERALA GIDC (BAVLA), DIST.: AHMEDABAD-382220		
Product Name	AFROFRANIL	
Generic Name	Clomipramine Tablets 25 mg	

Paediatric population

Clomipramine should not be used in the treatment of depressive states, phobias and cataplexy associated with narcolepsy in children and adolescents under the age of 18 years.

Antidepressants increase the risk of suicide-related behaviours (suicide attempt and suicidal thoughts), and hostility (predominately aggression, oppositional behaviour and anger) were more frequently observed in clinical trials among children and adolescents treated with antidepressants compared to those treated with placebo. If based on clinical need, a decision to treat is nevertheless taken, the patient should be carefully monitored for the appearance of suicidal symptoms. In addition, long term safety data in children and adolescents concerning growth, maturation and cognitive behavioural development are lacking.

Families and care givers of both paediatric and adult patients being treated with antidepressants for both psychiatric and non-psychiatric indications, should be alerted about the need to monitor patients for the emergence of other psychiatric symptoms, as well as the emergence of suicidality, and to report such symptoms immediately to health care providers.

Prescriptions for clomipramine should be written for the smallest quantity of tablets consistent with good patient management, in order to reduce the risk of overdose.

Modifying the therapeutic regimen, including possibly discontinuing the medication, should be considered in these patients, especially if these changes are severe, abrupt in onset, or were not part of the patient's presenting symptoms.

Other psychiatric effects

Many patients with panic disorders experience intensified anxiety symptoms at the start of the treatment with antidepressants. This paradoxical initial increase in anxiety is most pronounced during the first few days of treatment and generally subsides within two weeks.

Activation of psychosis has occasionally been observed in patients with schizophrenia receiving tricyclic antidepressants.

Hypomanic or manic episodes have also been reported during a depressive phase in patients with cyclic affective disorders receiving treatment with a tricyclic antidepressant. In such cases it may be necessary to reduce the dosage of clomipramine or to withdraw it and administer an antipsychotic agent. After such episodes have subsided, low dose therapy with clomipramine may be resumed if required.

JFL LIFESCIENCES LTD. 615, KERALA GIDC (BAVLA), DIST.: AHMEDABAD-382220		
Product Name	AFROFRANIL	
Generic Name	Clomipramine Tablets 25 mg	

In predisposed patients, tricyclic antidepressants may provoke pharmacogenic (delirious) psychoses, particularly at night. These disappear within a few days of withdrawing the drug. As improvement in depression may not occur for the first two to four weeks treatment, patients should be closely monitored during this period.

Elderly patients are particularly liable to experience adverse effects, especially agitation, confusion, and postural hypotension.

Cardiac and vascular disorders

Clomipramine should be administered with particular precaution in patients with cardiovascular disorders, especially those with cardiovascular insufficiency, conduction disorders, (e.g. atrioventricular block grades I to III), arrhythmias. Monitoring of cardiac function and the ECG is indicated in such patients.

There may be a risk of QTc prolongation and torsades de pointes, particularly at supra-therapeutic doses or supra-therapeutic plasma concentrations of clomipramine, as occur in the case of co-medication with selective serotonin reuptake inhibitors (SSRIs). Therefore, concomitant administration of drugs that can cause accumulation of clomipramine should be avoided. Equally, concomitant administration of drugs that can prolong the QTc interval should be avoided. It is established that hypokalaemia is a risk-factor of QTc prolongation and torsades de pointes. Therefore, hypokalaemia should be treated before initiating treatment with clomipramine.

Before initiating treatment it is advisable to check the patient's blood pressure, because individuals with hypotension or a labile circulation may react to the drug with a fall in blood pressure.

Serotonin syndrome

Concomitant administration of Clomipramine and SSRIs, SNaRIs, tricyclic antidepressants, lithium and buprenorphine/ opioids may result in serotonin syndrome, a potentially life-threatening condition.

If concomitant treatment with other serotonergic agents is clinically warranted, careful observation of the patient is advised, particularly during treatment initiation and dose increases. Symptoms of serotonin syndrome may include mental-status changes (delirium), autonomic instability (agitation, seizures, coma), neuromuscular abnormalities (myoclonus), and/or gastrointestinal symptoms.

JFL LIFESCIENCES LTD. 615, KERALA GIDC (BAVLA), DIST.: AHMEDABAD-382220		
Product Name	AFROFRANIL	
Generic Name	Clomipramine Tablets 25 mg	

If serotonin syndrome is suspected, a dose reduction or discontinuation of therapy should be considered depending on the severity of the symptoms.

Convulsions

Tricyclic antidepressants are known to lower the convulsion threshold and clomipramine should therefore, be used with extreme caution in patients with epilepsy and other predisposing factors, e.g. brain damage of varying aetiology, concomitant use of neuroleptics.

Treatment discontinuation

Abrupt withdrawal should be avoided because of possible adverse reactions. If the decision is made to discontinue treatment, medication should be tapered, as rapidly as is feasible, but with recognition that abrupt discontinuation can be associated with certain symptoms.

4.5 Interaction with other medicinal products and other forms of interaction

Interactions resulting in a contraindication

MAO inhibitors

Do not give clomipramine for at least 3 weeks after discontinuation of treatment with MAO inhibitors (there is a risk of severe symptoms consistent with Serotonin Syndrome such as hypertensive crisis, hyperpyrexia, myoclonus, agitation, seizures, delirium and coma). The same applies when giving a MAO inhibitor after previous treatment with clomipramine. In both instances the treatment should initially be given in small gradually increasing doses and its effects monitored. There is evidence to suggest that clomipramine may be given as little as 24 hours after a reversible MAO-A inhibitor such as moclobemide, but the 3-week wash-out period must be observed if the MAO-A inhibitor is used after clomipramine.

Interactions resulting in a concomitant use not recommended

Diuretics

Diuretics may lead to hypokalaemia, which increases the risk of QTc prolongation and torsades de pointes. Hypokalaemia should therefore be treated prior to administration of clomipramine.

Quinidine

Tricyclic antidepressants should not be employed in combination with antiarrhythmic agents of the quinidine type.

JFL LIFESCIENCES LTD. 615, KERALA GIDC (BAVLA), DIST.: AHMEDABAD-382220		
Product Name	AFROFRANIL	
Generic Name	Clomipramine Tablets 25 mg	

Selective serotonin reuptake inhibitors (SSRIs)

SSRIs which are inhibitors of CYP2D6, such as fluoxetine, paroxetine, or sertraline, and of others including CYP1A2 and CYP2C19 (e.g. fluvoxamine), may also increase plasma concentrations of clomipramine, with corresponding adverse effects. Steady-state serum levels of clomipramine increased ~4-fold by co-administration of fluvoxamine (N- desmethyl clomipramine decreased ~2-fold). In addition, co-medication with SSRIs may lead to additive effects on the serotonergic system (see serotonergic agents)

Serotonergic agents

Serotonin Syndrome can possibly occur when clomipramine is administered with other serotonergic co-medications such as selective serotonin reuptake inhibitors (SSRIs), serotonin and noradrenergic reuptake inhibitors (SNaRIs), tricyclic antidepressants and lithium. For fluoxetine, a wash-out period of two to three weeks is advised before and after treatment with fluoxetine.

Interactions to be considered

Interactions resulting in increased effect of clomipramine

Oral antifungal, terbinafine

Co-administration of clomipramine with terbinafine, a strong inhibitor of CYP2D6, may result in increased exposure and accumulation of clomipramine and its N-demethylated metabolite. Therefore, dose adjustments of clomipramine may be necessary when co- administered with terbinafine.

Cimetidine

Co-administration with the histamine₂ (H₂)-receptor antagonist, cimetidine (an inhibitor of several P450 enzymes, including CYP2D6 and CYP3A4), may increase plasma concentrations of tricyclic antidepressants, whose dosage should therefore be reduced.

Oral contraceptives

No interaction between chronic oral contraceptive use (15 or 30 micrograms ethinylestradiol daily) and clomipramine (25 mg daily) has been documented. Oestrogens are not known to be inhibitors of CYP2D6, the major enzyme involved in clomipramine clearance and, therefore, no interaction is expected. Although, in a few cases with high dose oestrogen (50 micrograms daily) and the tricyclic antidepressant imipramine, increased side effects and therapeutic

JFL LIFESCIENCES LTD. 615, KERALA GIDC (BAVLA), DIST.: AHMEDABAD-382220		
Product Name	AFROFRANIL	
Generic Name	Clomipramine Tablets 25 mg	

response were noted, it is unclear as to the relevance of these cases to clomipramine and lower dose oestrogen regimens. Monitoring therapeutic response of tricyclic antidepressants at high dose oestrogen regimens (50 micrograms daily) is recommended and dose adjustments may be necessary.

Interactions resulting in decreased effect of clomipramine

Rifampicin

Rifampicin (CYP3A and CYP2C inducer) may decrease clomipramine concentrations as concomitant administration of drugs known to induce cytochrome P450 enzymes, particularly CYP3A4, CYP2C19 may accelerate the metabolism and decrease the efficacy of clomipramine.

Anticonvulsants

Anticonvulsants (CYP3A and CYP2C inducer) e.g. barbiturates, carbamazepine, phenobarbital and phenytoin, may decrease clomipramine concentrations as concomitant administration of drugs known to induce cytochrome P450 enzymes, particularly CYP3A4, CYP2C19 may accelerate the metabolism and decrease the efficacy of clomipramine.

Cigarette smoking

Known inducers of CYP1A2 (e.g. nicotine/components in cigarette smoke), decrease plasma concentrations of tricyclic drugs. In cigarette smokers, clomipramine steady-state plasma concentrations were decreased 2-fold compared to non-smokers (no change in N- desmethyl clomipramine).

Colestipol and cholestyramine

Concomitant administration of ion exchange resins such as cholestyramine or colestipol may reduce the plasma levels of clomipramine. Staggering the dosage of clomipramine and resins, such that the drug is administered at least 2 h before or 4-6 h after the administration of resins, is recommended.

4.6 Fertility, Pregnancy and lactation

Women of child-bearing potential

There are no data supporting any special recommendations in women of child-bearing potential.

JFL LIFESCIENCES LTD. 615, KERALA GIDC (BAVLA), DIST.: AHMEDABAD-382220		
Product Name	AFROFRANIL	
Generic Name	Clomipramine Tablets 25 mg	

Pregnancy

There is limited amount of data from the use of clomipramine in pregnant women that indicates a potential to harm the foetus or cause congenital malformation.

Neonates whose mothers had taken tricyclic antidepressants up until delivery have developed dyspnoea, lethargy, colic, irritability, hypotension or hypertension, tremor or spasms, during the first few hours or days.

Breast-feeding

Clomipramine passes into the breast milk in small quantities. Therefore, nursing mothers should be advised to withdraw the medication or cease breast-feeding.

Fertility

Clomipramine hydrochloride did not appear to have any significant effects on fertility and general reproductive performance.

4.7 Effects on ability to drive and use machines:

Patients receiving clomipramine should be warned that blurred vision, drowsiness and other nervous system and psychiatric related disorders such as somnolence, disturbance in attention, confusion, disorientation, aggravation of depression, delirium etc.

4.8 Undesirable effects

Unwanted effects are usually mild and transient, disappearing under continued treatment or with a reduction in the dosage. They do not always correlate with plasma drug levels or dose. It is often difficult to distinguish certain undesirable effects from symptoms of depression such as fatigue, sleep disturbances, agitation, anxiety, constipation, and dry mouth.

If severe neurological or psychiatric reactions occur, clomipramine should be withdrawn.

Adverse reactions are ranked under heading of frequency, the most frequent first, using the following convention: very common ($\geq 1/10$); common ($\geq 1/100$ to $< 1/10$); uncommon ($\geq 1/1,000$ to $< 1/100$); rare ($\geq 1/10,000$ to $< 1/1,000$); very rare ($< 1/10,000$); not known (cannot be estimated from the available data).

JFL LIFESCIENCES LTD. 615, KERALA GIDC (BAVLA), DIST.: AHMEDABAD-382220		
Product Name	AFROFRANIL	
Generic Name	Clomipramine Tablets 25 mg	

Blood and lymphatic system disorders	
Very rare	Leucopenia, agranulocytosis, thrombocytopenia, eosinophilia
Immune system disorders	
Very rare	Anaphylactic and anaphylactoid reactions including hypotension
Endocrine disorders	
Very rare	SIADH (inappropriate antidiuretic hormone secretion syndrome)
Metabolism and nutrition disorders	
Very common	Increased appetite
Common	Decreased appetite
Psychiatric disorders	
Very common	Restlessness
Common	Confusional state, disorientation, hallucinations (particularly in elderly patients and patients with Parkinson's disease), anxiety, agitation, sleep disorder, mania, hypomania, aggression, depersonalization, aggravation of depression, insomnia, nightmares, delirium
Uncommon	Activation of psychotic symptoms
Not known	Suicidal ideation, suicidal behaviour
Nervous system disorders	
Very common	Dizziness, tremor, headache, myoclonus, somnolence
Common	Speech disorder, paraesthesia, hypertonia, dysgeusia, memory impairment, disturbance in attention
Uncommon	Convulsions, ataxia
Very rare	Neuroleptic malignant syndrome
Not known	Serotonin syndrome, extrapyramidal disorder (including akathisia and tardive dyskinesia)
Eye disorders	
Very common	Accommodation disorder, vision blurred
Common	Mydriasis
Very rare	Glaucoma
Ear and labyrinth disorders	
Common	Tinnitus
Cardiac disorders	
Common	Sinus tachycardia, palpitation, orthostatic hypotension, clinically irrelevant ECG changes (e.g. ST and T changes) in patients of normal cardiac status
Uncommon	Arrhythmias, blood pressure increased.
Very rare	Conduction disorder (e.g. widening of QRS complex, prolonged QT interval, PQ changes, bundle-branch block, torsade's de pointes, particularly in patients with hypokalemia)
Vascular disorders	
Common	Hot flush
Respiratory, thoracic, and mediastinal disorders	
Common	Yawning
Very rare	Alveolitis allergic (pneumonitis) with or without eosinophilia

JFL LIFESCIENCES LTD. 615, KERALA GIDC (BAVLA), DIST.: AHMEDABAD-382220		
Product Name	AFROFRANIL	
Generic Name	Clomipramine Tablets 25 mg	

Gastrointestinal disorders	
Very common	Nausea, dry mouth, constipation
Common	Vomiting, gastrointestinal disorders, diarrhea
Hepatobiliary disorders	
Very rare	Hepatitis with or without jaundice
Skin and subcutaneous tissue disorders	
Very common	Hyperhidrosis
Common	Dermatitis allergic (skin rash, urticaria), photosensitivity reaction, pruritus

4.9 Overdose:

The signs and symptoms of overdose with clomipramine are similar to those reported with other tricyclic antidepressants. Cardiac abnormalities and neurological disturbances are the main complications. In children accidental ingestion of any amount should be regarded as serious and potentially fatal.

Signs and symptoms

Symptoms generally appear within 4 hours of ingestion and reach maximum severity after 24 hours. Owing to delayed absorption (anticholinergic effect), long half-life, and enterohepatic recycling of the drug, the patient may be at risk for up to 4-6 days.

The following signs and symptoms may be seen:

Central nervous system:

Drowsiness, stupor, coma, ataxia, restlessness, agitation, enhanced reflexes, muscular rigidity, athetoid and choreoathetoid movements, convulsions, serotonin syndrome (e.g. hypertensive crisis, hyperpyrexia, myoclonus, delirium and coma).

Cardiovascular system

Hypotension, tachycardia, QTc prolongation and arrhythmia including torsades de pointes, conduction disorders, shock, heart failure; in very rare cases cardiac arrest.

Respiratory depression, cyanosis, vomiting, fever, mydriasis, sweating and oliguria or anuria may also occur.

Treatment

There is no specific antidote, and treatment is essentially symptomatic and supportive.

Anyone suspected of receiving an overdose of clomipramine, particularly children, should be hospitalised and kept under close surveillance for at least 72 hours.

JFL LIFESCIENCES LTD. 615, KERALA GIDC (BAVLA), DIST.: AHMEDABAD-382220		
Product Name	AFROFRANIL	
Generic Name	Clomipramine Tablets 25 mg	

Perform gastric lavage or induce vomiting as soon as possible if the patient is alert. If the patient has impaired consciousness, secure the airway with a cuffed endotracheal tube before beginning lavage, and do not induce vomiting. These measures are recommended for up to 12 hours or even longer after the overdose, since the anticholinergic effect of the drug may delay gastric emptying. Administration of activated charcoal may help to reduce drug absorption. Treatment of symptoms is based on modern methods of intensive care, with continuous monitoring of cardiac function, blood gases, and electrolytes, and if necessary, emergency measures such as:

For respiratory failure:

- intubation and artificial respiration. For cardiovascular symptoms:
- in severe hypotension the patient should be placed in an appropriate position and be given a plasma expander, dopamine, or dobutamine by intravenous drip.
- cardiac arrhythmias must be treated according to the requirements of the case.
- implantation of a cardiac pacemaker should be considered.
- low potassium values and acidosis should be corrected.

In all patients with ECG abnormalities, cardiac function should - even after the ECG tracings have reverted to normal - be kept under close observation for at least another 48 hours because relapses may occur.

Treatment of torsades de pointes:

If torsades de pointes should occur during treatment with clomipramine, the drug should be discontinued and hypoxia, electrolyte abnormalities and acid base disturbances should be corrected. Persistent torsades de pointes may be treated with magnesium sulphate 2 g (20 ml of 10% solution) intravenously over 30-120 seconds, repeated twice at intervals of 5-15 minutes if necessary. Alternatively, if these measures fail, the arrhythmia may be abolished by increasing the underlying heart rate. This can be achieved by atrial and ventricular pacing or by isoprenaline (isoproterenol) infusion to achieve a heart rate of 90-110 beats per minute. Torsades de pointes is usually not helped by antiarrhythmic drugs and those which prolong the QTc interval (e.g. amiodarone, quinidine) may make it worse.

Since it has been reported that physostigmine may cause severe bradycardia, asystole and seizures, its use is not recommended in cases of overdosage with clomipramine.

JFL LIFESCIENCES LTD. 615, KERALA GIDC (BAVLA), DIST.: AHMEDABAD-382220		
Product Name	AFROFRANIL	
Generic Name	Clomipramine Tablets 25 mg	

Haemodialysis or peritoneal dialysis are ineffective because of the low plasma concentrations of clomipramine.

For convulsions:

Diazepam should be given iv or other anticonvulsants such as phenobarbitone or paraldehyde (these substances may exacerbate existing respiratory failure, hypotension, or coma).

JFL LIFESCIENCES LTD. 615, KERALA GIDC (BAVLA), DIST.: AHMEDABAD-382220		
Product Name	AFROFRANIL	
Generic Name	Clomipramine Tablets 25 mg	

5. Pharmacological properties

5.1 Pharmacodynamic properties

Pharmacotherapeutic group: Antidepressants, Non-selective monoamine reuptake inhibitors

ATC code: N06AA04.

The therapeutic activity of clomipramine is believed to be based on its ability to inhibit the neuronal re-uptake of noradrenaline (NA) and serotonin (5-HT) released in the synaptic cleft, with inhibition of 5-HT reuptake being the more important of these activities.

Clomipramine also has a wide pharmacological spectrum of action, which includes alpha1-adrenolytic, anticholinergic, antihistaminic, and antiserotonergic (5-HT-receptor blocking) properties.

5.2 Pharmacokinetic properties

Absorption

The active substance is completely absorbed following oral administration and intramuscular injection. The systemic bioavailability of unchanged clomipramine is reduced by 50% by "first-pass" metabolism to desmethyl clomipramine (an active metabolite). The bioavailability of clomipramine is not markedly affected by the ingestion of food but the onset of absorption and therefore the time to peak may be delayed. Coated tablets and sustained release tablets are bioequivalent with respect to amount absorbed. During oral administration of constant daily doses of clomipramine the steady state plasma concentrations of clomipramine and desmethyldomipramine (active metabolite) and the ratio between these concentrations show a high variability between patients, e.g. 75 mg clomipramine daily produces steady state concentrations of clomipramine ranging from about 20 to 175 ng/ml. Levels of desmethyldomipramine follow a similar pattern but are 40-85% higher. Clomipramine slows gastro-intestinal transit time, absorption can, however, be delayed, particularly in overdose.

Distribution

Clomipramine and desmethyl clomipramine are widely distributed throughout the body and is 97.6% bound to plasma and tissue protein. The apparent volume of distribution is about 12-17 l/kg body weight. Concentrations in cerebrospinal fluid are about 2% of the plasma concentration. It is reported to have a low and variable bioavailability following oral administration (48.2% of that after intravenous administration) and this has been related to

JFL LIFESCIENCES LTD. 615, KERALA GIDC (BAVLA), DIST.: AHMEDABAD-382220		
Product Name	AFROFRANIL	
Generic Name	Clomipramine Tablets 25 mg	

extensive first-pass hepatic metabolism. Following single oral doses of 50 mg and 100 mg in healthy volunteers peak plasma concentrations of clomipramine of 28.8 ± 11.2 ng/ml (range 16.5 to 53 ng/ml (at 3 to 5 hours post-dose) and 70-140 ng/ml (at 1 to 2.5 hours post-dose) respectively are reported). Peak plasma concentrations of desmethylclomipramine of 5.0 ± 1.4 ng/ml (range 2.9 to 7.8 ng/ml have been reported to occur between 5 to 12 hours after a single oral dose of 50 mg. After chronic administration in depressed patients steady state plasma concentrations of clomipramine have been noted to vary 20 to 30 fold. Vandel et al reported that following repeated doses of 75 mg a day for 1 month, steady state plasma concentrations of clomipramine and desmethylclomipramine were 124.5 ± 94 ng/ml and 144.8 ± 113 ng/ml respectively.

Biotransformation

The major route of transformation of clomipramine is demethylation to desmethyl clomipramine. In addition, clomipramine and desmethyl clomipramine are hydroxylated to 8-hydroxy-clomipramine and 8-hydroxy-desmethyl-clomipramine but little is known about their activity in vivo. The hydroxylation of clomipramine and desmethyl clomipramine is under genetic control similar to that of debrisoquine. In poor metabolisers of debrisoquine this may lead to high concentrations of desmethyl clomipramine; concentrations of clomipramine are less significantly influenced.

Elimination

Oral clomipramine is eliminated from the blood with a mean half-life of 21 hours (range 12-36 h), and desmethyl clomipramine with a half-life of 36 hours. About two-thirds of a single dose of clomipramine is excreted in the form of water-soluble conjugates in the urine, and approximately one-third in the faeces. The quantity of unchanged clomipramine and desmethyl clomipramine excreted in the urine amounts to about 2% and 0.5% of the administered dose respectively.

Elderly

In the elderly, plasma clomipramine concentrations may be higher for a given dose than would be expected in younger patients because of reduced metabolic clearance.

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Hepatic and renal impairment

The effects of hepatic and renal impairment on the pharmacokinetics of clomipramine have not been determined.

5.3 Preclinical safety data

Repeat-dose toxicity

Phospholipids and testicular changes considered to be secondary to the phospholipidosis, commonly associated with tricyclic compounds, have been observed with clomipramine hydrochloride at doses >4 fold greater than the maximum recommended human daily dose (MRHD). The clinical relevance of these findings is unknown.

Reproductive toxicity

Clomipramine hydrochloride demonstrated evidence of embryotoxicity e.g. increased embryo lethality and growth retardation, in the rat and mouse studies (at doses which are 5 to 10 times the estimated oral MRHD of 5 mg/kg on a mg/kg basis), but not in the rabbit study. The safety margin for increased embryo lethality based on the administered dose is 2.5 times the oral MHRD.

No teratogenic effects were detected in mice, rats, and rabbits at doses up to 100, 50, and 60 mg/kg, respectively.

Mutagenicity

Various in vitro and in vivo mutagenicity tests were performed and did not reveal any mutagenic activity of clomipramine hydrochloride.

Carcinogenicity

The administration of clomipramine hydrochloride to mice and rats for 104 weeks did not show any evidence of carcinogenicity at dose levels representing 16 - 20 times the estimated oral MRHD of 5 mg/kg on a mg/kg basis.

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6. Pharmaceutical particulars

6.1 List of Excipients

Lactose BP, Maize Starch BP, Sodium Starch Glycolate BP, Sodium Methyl Paraben BP, Sodium Propyl Paraben BP, Purified Water BP, Purified Talcum BP, Magnesium Stearate BP, Aerosil BP, Cross Povidone BP, Calcium Carbonate BP, Titanium Dioxide BP, Gum Acacia BP, Gelatin BP, Sugar BP & Carnauba Wax BP.

6.2 Incompatibilities

Not Applicable

6.3 Shelf life

36 months from the date of manufacturing.

6.4 Special precautions for storage

Store below 30°C. Protect from moisture.

Keep out of the reach of children.

6.5 Nature and contents of container

2 x 25 Alu-PVC Blister.

25 tablets are packed in Alu-PVC blister. Such 2 Blisters are packed in inner carton with the package insert.

6.6 Special precautions for disposal

No special requirements.

7. Registrant

C C GLOBALCURE PHARMACEUTICAL COMPANY LTD.

No. 2 Edenta Close Awada Obosi Anambra State, Nigeria.

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8. Date of Revision of the Text

9. Name and Address of Manufacturer

JFL LIFESCIENCES LTD.

Plot No. 615, G.I.D.C Kerala (Bavla),

City: Kerala (Bavla) - 382245,

Dist: Ahmedabad, Gujarat, India

10. Marketed By

C C GLOBALCURE PHARMACEUTICAL COMPANY LTD.

No. 2 Edenta Close Awada Obosi Anambra State, Nigeria.