

^{TC} NITRAZADON[®]

(nitrazepam)

5 mg and 10 mg Tablets

Hypnotic and Anticonvulsant

AA PHARMA INC.
1165 Creditstone Road, Unit #1
Vaughan, Ontario
L4K 4N7

Date of Preparation:
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CONTROL NUMBER: 175173

NAME OF DRUG

^{TC} NITRAZADON[®]

(nitrazepam)

TABLETS

HYPNOTIC AND ANTICONVULSANT

ACTIONS AND CLINICAL PHARMACOLOGY

NITRAZADON (nitrazepam) is a benzodiazepine with hypnotic and anticonvulsant properties.

In sleep laboratory studies nitrazepam decreased sleep latency, increased total sleep time and decreased awake time. There is delay in the onset, and decrease in the duration of REM sleep. Nitrazepam is reported to significantly decrease stage 1, 3 and 4 sleep and to increase stage 2. Following discontinuation of the drug, REM sleep rebound has been reported in some studies. Nitrazepam has been shown to raise the seizure threshold.

General Benzodiazepine Clinical Pharmacology

The duration of hypnotic effect and the profile of unwanted effects may be influenced by the alpha (distribution) and beta (elimination) half-lives of the administered drug and any active metabolites formed. When half-lives are long, the drug or metabolite may accumulate during periods of nightly administration and be associated with impairments of cognitive and motor performance during waking hours. If half-lives are short, the drug and metabolites will be cleared before the next dose is ingested, and carry-over effects related to sedation or CNS depression should be minimal or absent. However, during nightly use and for an extended period, pharmacodynamic tolerance or adaptation to some effects of benzodiazepine hypnotics may develop. If the drug has a very short elimination half-life, it is possible that a relative deficiency (i.e., in relation to the receptor site) may occur at some point in the interval between each night's use. This sequence of events may account for two clinical findings reported to occur after several weeks of nightly use of rapidly eliminated benzodiazepine hypnotics: 1) increased wakefulness during the last third of the night; and 2) the appearance of increased daytime anxiety (see WARNINGS).

Nitrazepam has an intermediate half-life.

Pharmacokinetics

Nitrazepam is rapidly absorbed from the gastrointestinal tract. Bioavailability after an oral dose averages about 80%. Peak blood concentrations after oral administration are observed in approximately 3 hours.

Following the administration of single oral doses of 5 or 10 mg nitrazepam to healthy volunteers, mean peak plasma concentrations ranged between 23-66 ng/mL and 55-107 ng/mL, respectively. In elderly patients suffering from various debilitating diseases, a mean peak plasma concentration of 22 ng/mL was observed after a single dose of 5 mg nitrazepam. Steady state plasma concentrations following administration of 5 mg nitrazepam once daily were reached after approximately 4 days. Steady state plasma concentrations of nitrazepam were approximately 40 ng/mL.

In a comparative bioavailability study, the pharmacokinetic parameters for test and reference products were comparable and are listed in the summary table below:

SUMMARY TABLE OF THE COMPARATIVE BIOAVAILABILITY DATA

PARAMETER	NITRAZADON (10 mg tablets) Measured data Geometric Mean Arithmetic Mean (CV%)		
	TEST (AA) Canada	REFERENCE (Roche) Canada	RATIO OF MEANS (A/B%)
AUC _T (ng.hr/mL)	2388.63 2424.50 (17.6%)	2432.78 2456.70 (14.8%)	0.98 0.99
AUC _I (ng.hr/mL)	2665.29 2708.51 (18.3%)	2713.20 2741.35 (15.2%)	0.98 0.99
C _{max} (ng/mL)	89.70 94.17 (32.8%)	98.08 104.85 (43.4 %)	0.91 0.90
T _{max} (h)	1.86 (102%)	1.55 (79.0%)	1.20
T _½ (h)	29.85 (12.6%)	29.66 (13.4%)	1.01

The T_{max} and T_½ parameters are expressed as the arithmetic means.

Nitrazepam is a lipophilic drug and crosses the membrane barriers of the body readily. The concentrations in cerebrospinal fluid, about 10% of the total plasma level, are similar to the protein free fraction of plasma. Following oral administration, mean volumes of distribution were greater in elderly patients than in young volunteers (4.8 ± 1.7 vs 2.4 ± 0.8 L/kg, respectively). Total clearance was not significantly different in the two groups (78 ± 25 and 68 ± 33 mL/min, respectively).

Nitrazepam has no clinically active metabolites. The drug is excreted in human urine mainly as conjugated and non-conjugated aminonitrazepam and aceta-midonitrazepam. When given orally, 65 to 71% of the dose eventually appears in the urine and 14 to 20% in the feces. Only about 1% of the administered dose is excreted in the urine as unchanged nitrazepam. The major pathway involves hepatic nitroreduction.

The half-life of nitrazepam in healthy young volunteers is approximately 30 hours (range 18 to 57 hours). Elderly, ill patients showed a prolonged half-life of approximately 40 hours. Due to its slow elimination, nitrazepam accumulates when taken every night.

Approximately 87% of unchanged nitrazepam is bound to plasma proteins. In patients with liver cirrhosis, protein binding was significantly less than in healthy subjects (19% vs 14% unbound). In patients with mild to moderate renal insufficiency, protein binding was somewhat less than in healthy volunteers (16.8 vs 15.0% unbound).

Nitrazepam crosses the placental barrier and is excreted in maternal milk. Milk nitrazepam concentrations increased significantly from the first (30 nmol/L) to the fifth morning (48 nmol/L) in nursing mothers receiving 5 mg nitrazepam at night. The milk to plasma ratio of nitrazepam was 0.27 after 7 hours and did not vary from day 1 to day 5.

INDICATIONS AND CLINICAL USE

Sleep disturbance may be the presenting manifestation of a physical and/or psychiatric disorder. Consequently, a decision to initiate symptomatic treatment of insomnia should only be made after the patient has been carefully evaluated.

NITRAZADON (nitrazepam) is indicated for the short-term treatment and symptomatic relief of insomnia characterized by difficulty in falling asleep, frequent nocturnal awakenings, and/or early morning awakenings.

Treatment with NITRAZADON should usually not exceed 7-10 consecutive days. Use for more than 2-3 consecutive weeks requires complete re-evaluation of the patient. Prescriptions for NITRAZADON should be written for short-term use (7-10 days) and it should not be prescribed in quantities exceeding a 1-month supply.

The use of hypnotics should be restricted for insomnia where disturbed sleep results in impaired daytime functioning.

NITRAZADON is also useful for the management of myoclonic seizures.

CONTRAINDICATIONS

NITRAZADON (nitrazepam) is contraindicated in patients with known hypersensitivity to benzodiazepines, any component to its formulation, and in those with severe impairment of respiratory function, e.g., significant sleep apnea syndrome.

NITRAZADON is contraindicated in patients who have myasthenia gravis or severe hepatic insufficiency. NITRAZADON is contraindicated in children when used as a hypnotic.

WARNINGS

General: Benzodiazepines should be used with extreme caution in patients with a history of substance or alcohol abuse.

The smallest possible effective dose should be prescribed for elderly patients. Inappropriate, heavy sedation in the elderly may result in accidental events/falls.

The failure of insomnia to remit after 7-10 days of treatment may indicate the presence of a primary psychiatric and/or medical illness or the presence of sleep state misperception.

Worsening of insomnia or the emergence of new abnormalities of thinking or behaviour may be the consequence of an unrecognized psychiatric or physical disorder. These have also been reported to occur in association with the use of drugs that act at the benzodiazepine receptors. NITRAZADON should be used with caution in patients who in the past manifested paradoxical reactions to alcohol and/or sedative medications.

Pregnancy: The use of NITRAZADON (nitrazepam) during pregnancy is not recommended. Benzodiazepines may cause fetal damage when administered during pregnancy. During the first trimester of pregnancy, several studies have suggested an increased risk of congenital malformations associated with the use of benzodiazepines. During the last weeks of pregnancy, ingestion of therapeutic doses of a benzodiazepine hypnotic has resulted in neonatal CNS depression due to transplacental distribution. If NITRAZADON is prescribed to women of childbearing potential, the patient should be warned of the potential risk to a fetus and advised to consult her physician regarding the discontinuation of the drug if she intends to become pregnant or suspects that she might be pregnant.

Memory Disturbance: Anterograde amnesia of varying severity has been reported following therapeutic doses of benzodiazepines. The event is rare with NITRAZADON. Anterograde amnesia is a dose-related phenomenon and elderly subjects may be at particular risk.

Cases of transient global amnesia and “traveller's amnesia” have also been reported in association with benzodiazepines, the latter in individuals who have taken benzodiazepines, often in the middle of the night, to induce sleep while travelling. Transient global amnesia and traveller's amnesia are unpredictable and not necessarily dose-related phenomena. Patients should be warned not to take NITRAZADON under circumstances in which a full night's sleep

and clearance of the drug from the body are not possible before they need again to resume full activity.

Abnormal thinking and psychotic behavioral changes have been reported to occur in association with the use of benzodiazepines, including NITRAZADON, although rarely. Some of the changes may be characterized by decreased inhibition, e.g., aggressiveness or extroversion that seem excessive, similar to that seen with alcohol and other CNS depressants (e.g., sedative/hypnotics). Particular caution is warranted in patients with a history of violent behaviour and a history of unusual reactions to sedatives including alcohol and the benzodiazepines. Psychotic behavioural changes that have been reported with benzodiazepines include bizarre behaviour, hallucinations, and depersonalization. Abnormal behaviours associated with the use of benzodiazepines have been reported more with chronic use and/or high doses but they may occur during the acute, maintenance or withdrawal phases of treatment.

It can rarely be determined with certainty whether a particular instance of abnormal behaviours listed above is drug induced, spontaneous in origin, or a result of an underlying psychiatric disorder. Nevertheless, the emergence of any new behavioural sign or symptom of concern requires careful and immediate evaluation.

Confusion: The benzodiazepines affect mental efficiency, e.g., concentration, attention and vigilance. The risk of confusion is greater in the elderly and in patients with cerebral impairment.

Anxiety, Restlessness: An increase in daytime anxiety and/or restlessness has been observed during treatment with short half-life benzodiazepines although the syndrome can apply on occasion to drugs with longer elimination half-lives as well. Nitrazepam has an intermediate half-life.

Depression: Caution should be exercised if NITRAZADON is prescribed to patients with signs or symptoms of depression that could be intensified by hypnotic drugs. The potential for self-harm (e.g., intentional overdose) is high in patients with depression and thus, the least amount of drug that is feasible should be available to them at any one time.

Complex Sleep-related Behaviours: Complex sleep-related behaviours such as “sleep-driving” (i.e., driving while not fully awake after ingestion of a sedative-hypnotic, with amnesia for the event) have been reported in patients who have taken NITRAZADON. Other potentially dangerous behaviours have been reported in patients who got out of bed after taking a sedative-hypnotic and were not fully awake, including preparing and eating food, making phone calls, leaving the house, etc. As with “sleep-driving”, patients usually do not remember these events. The use of alcohol and other CNS-depressants with NITRAZADON appears to increase the risk of such behaviours, as does the use of NITRAZADON at doses exceeding the maximum recommended dose. NITRAZADON is not to be taken with alcohol. Caution is needed with concomitant use of other CNS depressant drugs. Due to the risk to the patient and the community, discontinuation of NITRAZADON should be strongly considered for patients who report any such sleep-related behaviours.

Severe Anaphylactic and Anaphylactoid Reactions: Rare cases of angioedema involving the tongue, glottis or larynx have been reported in patients after taking the first or subsequent doses of sedative-hypnotics, including NITRAZADON. Some patients have had additional symptoms such as dyspnea, throat closing or nausea and vomiting that suggest anaphylaxis. Some patients have required medical therapy in the emergency department. If angioedema involves the throat, glottis or larynx, airway obstruction may occur and be fatal. Patients who develop angioedema after treatment with NITRAZADON should not be rechallenged with the drug.

PRECAUTIONS

Drug Interactions: NITRAZADON (nitrazepam) may produce additive CNS depressant effects when co-administered with alcohol, sedative antihistamines, narcotic analgesics, anticonvulsants, antipsychotics (neuroleptics), anesthetics, or antidepressant agents or psychotropic medications which themselves can produce CNS depression. In the case of narcotic analgesics, enhancement of the euphoria may also occur leading to an increase in psychological dependence.

Compounds which inhibit certain hepatic enzymes (particularly cytochrome P450) may enhance the activity of benzodiazepines and benzodiazepine-like agents. Examples include cimetidine or erythromycin.

Tolerance: Some tolerance to the hypnotic effects of benzodiazepines may develop after repeated use.

Drug Abuse, Dependence and Withdrawal: Withdrawal symptoms, similar in character to those noted with barbiturates and alcohol (convulsions, tremor, abdominal and muscle cramps, vomiting, sweating, dysphoria, perceptual disturbances and insomnia, headache, extreme anxiety, tension, restlessness, confusion and irritability) have occurred following abrupt discontinuation of benzodiazepines, and may follow the discontinuation of NITRAZADON. In severe cases, the following symptoms may occur: derealization, depersonalization, hyperacusis, numbness and tingling of the extremities, hypersensitivity to light, noise and physical contact, hallucinations and epileptic seizures. The more severe symptoms are usually associated with higher dosages and longer usage, although patients given therapeutic dosages for as few as 1-2 weeks can also have withdrawal symptoms including daytime anxiety between nightly doses. Consequently, abrupt discontinuation should be avoided and a gradual dosage tapering schedule is recommended in any patient taking more than the lowest dose for more than a few weeks. The recommendation for tapering is particularly important in patients with a history of seizures.

The risk of dependence is increased in patients with a history of alcoholism, drug abuse, or in patients with marked personality disorders. Caution must be exercised if it is at all necessary to administer NITRAZADON to these individuals.

As with all hypnotics, repeat prescriptions should be limited to those who are under medical supervision.

It may be useful to inform the patient when treatment is started that it will be of limited duration

and to explain precisely how the dosage will be progressively decreased. Moreover, it is important that the patient should be aware of the possibility of rebound phenomena, thereby minimizing anxiety over such symptoms should they occur while the medicinal product is being discontinued.

Rebound Insomnia: A transient syndrome whereby the symptoms that led to treatment with a benzodiazepine or benzodiazepine-like agent recur in an enhanced form, may occur on withdrawal of hypnotic treatment. It may be accompanied by other reactions including mood changes, anxiety and restlessness.

Patients with Specific Conditions: NITRAZADON should be given with caution to patients with impaired hepatic or renal function, and is contraindicated in patients with severe impairment of hepatic or respiratory function. Respiratory depression has been reported in patients with compromised respiratory function. A lower dose is also recommended for patients with chronic respiratory insufficiency due to the risk of respiratory depression. Benzodiazepines are not recommended for the primary treatment of psychotic illnesses.

Patients Requiring Mental Alertness: Because of NITRAZADON's CNS depressant effect, patients receiving the drug should be cautioned against engaging in hazardous occupations requiring complete mental alertness such as operating machinery or driving a motor vehicle. For the same reason, patients should be warned against the concomitant ingestion of NITRAZADON and alcohol or CNS depressant drugs.

Bronchial Hypersecretion, Excessive Salivation: In infants and young children, as well as elderly, bed-ridden patients, bronchial hypersecretion and excessive salivation leading to aspiration/pneumonia may occur on rare occasions.

Use in Pregnancy: NITRAZADON is not recommended for use during pregnancy. For teratogenic effects see WARNINGS. Non-teratogenic effects: a child born to a mother who is on benzodiazepines may be at risk for withdrawal symptoms from the drug during the postnatal period. Also, neonatal flaccidity has been reported in an infant born to a mother who had been receiving benzodiazepines.

Use in Nursing Mothers: Since nitrazepam is excreted in maternal milk, nursing should not be undertaken while the patient is taking NITRAZADON.

Use in Children: The safety and effectiveness of NITRAZADON as a hypnotic in children below the age of 18 have not been established. (See Contraindications Section)

Use in the Elderly: Elderly patients are especially susceptible to dose-related adverse effects, such as drowsiness, dizziness, or impaired coordination. Inappropriate, heavy sedation may result in accidental events/falls. Therefore, the lowest possible dose should be used in these subjects.

ADVERSE REACTIONS

The most common adverse reactions are fatigue, dizziness, light-headedness, drowsiness, lethargy, mental confusion, staggering, ataxia and falling. These phenomena occur predominantly at the start of therapy and usually disappear with repeated administration.

Depressed dreaming and nightmares have also been reported.

Sedative effects can often be decreased by a reduction in dosage. Children, the elderly and/or debilitated patients are more susceptible to sedative effects and paradoxical reactions. Therefore, these patients should be carefully screened before they are given hypnotics and the lowest effective dose should be used. Paradoxical reactions such as agitation, hyperactivity, excitement, hallucinations, increased muscle spasticity, aggressiveness, irritability, rages, psychoses and violent behaviour have been reported in rare instances when using drugs that act at the benzodiazepine receptors. Should these occur, the drug should be discontinued.

Hangover, disorientation, severe sedation, hypotension, signs and symptoms of withdrawal including delirium tremens, and cutaneous reactions have been reported. Headache, heartburn, upset stomach, diarrhea, constipation, nausea, vomiting, weakness, faintness, palpitations, blurred vision, dyspnea, nervousness, apprehension, depression, numbed emotions, changes in libido, inappropriate behaviour, altered hepatic function tests and, in rare instances, leucopenia and granulocytopenia have been reported with this drug or other drugs of this class.

SYMPTOMS AND TREATMENT OF OVERDOSAGE

Symptoms: The cardinal manifestations are drowsiness, confusion, reduced reflexes, increasing sedation, and coma. Effects on respiration, pulse and blood pressure are noticed with large overdoses. Patients exhibit some jitteriness and over stimulation usually when the effects of the drug begin to wear off.

Treatment: In the management of overdose with any medicinal product, it should be borne in mind that multiple agents may have been taken. Following overdose with NITRAZADON vomiting should be induced (within one hour) if the patient is conscious or gastric lavage undertaken with the airway protected if the patient is unconscious. If there is no advantage in emptying the stomach, activated charcoal should be given to reduce absorption. If respiratory depression and/or coma are observed, the presence of other central nervous system depressants should be suspected. Respiration, pulse and blood pressure should be monitored. General supportive measures aimed at maintaining cardiopulmonary function should be instituted and administration of intravenous fluids started. Hypotension and CNS depression are managed by the usual means. Dialysis is usually of little value.

Use of Reversal Agent: The benzodiazepine antagonist, flumazenil (Anexate) is a specific antidote in known or suspected benzodiazepine overdose. (For conditions of use see Anexate Product Monograph.)

The use of Anexate **is not** recommended in epileptic patients who have been treated with NITRAZADON (or any other benzodiazepine). The reversal of the benzodiazepine effect could induce convulsions in such patients.

DOSAGE AND ADMINISTRATION

The lowest effective dose of NITRAZADON (nitrazepam) should be used. Treatment with NITRAZADON should be as short as possible, and should usually not exceed 7-10 consecutive days. Use for more than 2-3 consecutive weeks requires complete re-evaluation of the patient. NITRAZADON should be withdrawn for a treatment-free period at regular intervals to ascertain whether the therapy needs to be continued.

Dosage of NITRAZADON should be individualized for maximal beneficial effect.

NITRAZADON tablets may be swallowed whole, chewed or dissolved in liquid.

Insomnia

Adults: The usual adult dose is 5 or 10 mg before retiring.

Elderly and/or Debilitated Patients: It is recommended that in these patients therapy be initiated with 2.5 mg until individual responses are determined. Doses higher than 5 mg are usually not recommended in the elderly.

Myoclonic Seizures

Children: The usual dose for children (up to 30 kg of body weight) is between 0.3 and 1.0 mg/kg/day given in three divided doses. Treatment should be initiated with a lower dose than the usual recommended dosage range in order to determine tolerance and response. If a dose within the recommended dosage range does not control the condition, a higher dosage may be gradually attempted. Higher doses may cause excessive drowsiness, and may cause bronchial hypersecretion in infants with epilepsy. The use of NITRAZADON in infants with epilepsy must be examined before treatment is started in order to determine whether the upper airways are clear. Whenever possible the daily dosage should be divided into three equal doses. If doses are not equally divided, the larger dose should be given before retiring. In some patients tolerance develops to the effects of nitrazepam.

The use of multiple anticonvulsants may result in an increase of central nervous system depressant adverse effects. This should be borne in mind whenever NITRAZADON is added to an already existing anticonvulsant regimen.

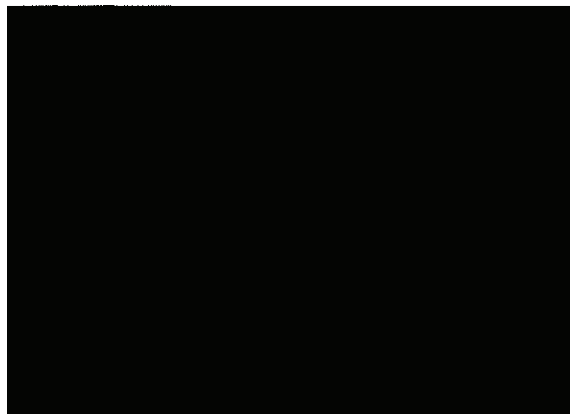
PHARMACEUTICAL INFORMATION

i) Drug Substance

Proper Name: Nitrazepam

Chemical Name: 1,3-dihydro-7-nitro-5-phenyl-2H-1,4-benzodiazepin-2-one

Structural Formula:



Molecular Formula: $C_{15}H_{11}N_3O_3$

Molecular Weight: 281.3

Description: Nitrazepam is a yellow, crystalline powder. It is practically insoluble in water; slightly soluble in ethanol (96%) and in ether; sparingly soluble in chloroform.

ii) Composition

Each NITRAZADON tablet contains either 5 or 10 mg of nitrazepam, BP, croscarmellose sodium, lactose, magnesium stearate, microcrystalline cellulose.

iii) Stability and Storage Recommendations

Store at controlled room temperature at 15-30°C. Protect from light. The medicine should not be used after the expiry date (EXP) shown on the pack.

DOSAGE FORMS

Availability

Each white, round, scored NITRAZADON tablet contains 5 mg nitrazepam, BP. Bottles of 100's and 500's.

Each white, round, scored NITRAZADON tablet contains 10 mg nitrazepam, BP. Bottles of 100's and 500's.

PHARMACOLOGY

In animal tests, nitrazepam produces sedative, hypnotic, taming, muscle relaxant and anticonvulsant effects. It selectively suppresses metrazole-induced seizures. After I.V. administration of doses of 1 to 8 mg/kg to dogs and cats, nitrazepam did not significantly modify the systolic or diastolic blood pressure. However, in both species, there was a significant reduction in heart rate, particularly evident at the highest dose. Blood pressure response to norepinephrine and serotonin was inhibited while the response to histamine was somewhat prolonged. Nitrazepam had a depressant effect on both the spontaneous and the activated EEG after relatively high intravenous doses, i.e., 1 to 10 mg. The same doses produced a marked reduction in the response to hypothalamic as well as reticular activating system (RAS) stimulations, whereas there was an increase in the threshold upon stimulation of the limbic system.

TOXICOLOGY

Acute Toxicity: LD₅₀'s

SPECIES	ROUTE	DOSE
Mouse	i.p.	275 mg/kg at 72 hours
	p.o.	1,800 mg/kg
Rat	i.p.	>2,000 mg/kg at 24 hours 950 mg/kg at 10 days
	p.o.	>2,000 at 24 hours
		1,000 at 10 days

In dogs, doses of 1,200 mg/kg produced a three-day sleep and all animals survived.

Subacute and Chronic Toxicity Studies: Oral doses of nitrazepam 10, 20, 80, 100, 240 and 320 mg/kg/day were administered to rats in a series of studies lasting from 6 to 78 weeks. At doses of 10, 20, 80 and 100 mg/kg/day no serious side effects were encountered, with the exception of an initial hyperexcitability followed by ataxia, and reduction in weight and food intake in the 100 mg/kg group. At doses of 240 and 320 mg/kg/day a marked reduction in weight and food consumption was observed and most animals presented an unhealthy appearance. At these doses in males, testicular tubular degeneration and aspermiogenesis were produced. Deaths occurred caused either by diarrhea, convulsive seizures of brief duration or other acute toxic effects.

Oral doses of nitrazepam of 10, 20, 40 and 80 mg/kg/day were administered for 6 weeks to dogs. A significant sedative effect was observed at all dose levels. Histopathological examination revealed evidence of liver involvement in the dogs treated with 40 and 80 mg/kg/day (liver enlargement, cloudy swelling of liver). The six-month oral chronic toxicity study in the dog was performed with the same doses as the previous study. Lower doses were well tolerated. There was loss of weight in the 40 and 80 mg/kg groups. Three dogs out of 6 in the 80 mg/kg group died during epileptiform seizures. There was increase weight of livers in the 40 and 80 mg/kg groups. Oral doses of 2.5, 10 and 40 mg/kg/day were administered to dogs in a study, lasting 55 to 56 weeks. At the highest dose elevated leucocyte counts, elevated sedimentation rates, slight increase in liver weights, and edematous swelling of the forepaws were observed. No unusual histopathology was noted.

Reproductive Studies: Reproductive studies in the rat, rabbit, mouse and dog, were performed using doses ranging from 2 to 100 mg/kg/day. At the 100 mg/kg/day dosage in the rat and rabbit, multiple skeletal defects and fetal resorption were produced. Nitrazepam may produce dose-related teratogenic effects in the rat. Changes in fertility and general reproductive performance may be related to its pharmacological action (sedative and hypnotic effect) in the animal species studied.

SELECTED REFERENCES

Pharmacology

1. King DJ. Benzodiazepines, amnesia and sedation: theoretical and clinical issues and controversies. *Hum Psychopharmacol* 1992;7:79-87.
2. Kramer M, Shoen LS. Problems in the use of long-acting hypnotics in older patients. *J Clin Psychiatry* 1984;45:176-7.
3. Maczaj M. Pharmacological treatment of insomnia. *Drugs* 1993;45:44-55.
4. Matheson I, Lunde P, Bredesen J. Midazolam and nitrazepam in the maternity ward: milk concentrations and clinical effects. *Br J Clin Pharmacol* 1990;30:787-93.
5. Muraoka M, Tada K, Nogami Y, et al. Residual effects of repeated administration of triazolam and nitrazepam in healthy volunteers. *Neuropsychobiology* 1992;25:134-9.
6. Randall LO, Kappell B. Pharmacological activity of some benzodiazepines and their metabolites. In: Garattini S, Mussini E, Randall LO, ed., *The benzodiazepines*, Raven Press, New York 1973:27-51.
7. Diagnostic Classification Steering Committee. Thorpe MJ, Chairman. International classification of sleep disorders: diagnostic and coding manual. Rochester Minnesota, American Sleep Disorders Association, 1990.

Metabolism and Pharmacokinetics

8. Abernethy DR, Greenblatt DJ, Locniskar A, et al. Obesity effects on nitrazepam disposition. *Br J Clin Pharmacol* 1986;22:551-7.
9. Breimer DD. Clinical pharmacokinetics of hypnotics. *Clin Pharmacokinetics* 1977;2:93-109.
10. Greenblatt DJ, Abernethy DR, Locniskar A, et al. Age, sex, and nitrazepam kinetics: relation to antipyrine disposition. *Clin Pharm Ther* 1985;38:697-703.
11. Jochemsen R, Van Beusekom BR, Spoelstra P, et al. Effect of age and liver cirrhosis on the pharmacokinetics of nitrazepam. *Br J Clin Pharmacol* 1983;15:295-302.
12. Kangas L, Kants J, Erklaida R. Transfer of nitrazepam across the human placenta. *Eur J Clin Pharmacol* 1977;12:355-7.
13. Kangas L, Breimer DD. Clinical pharmacokinetics of nitrazepam. *Clin Pharmacokinet* 1981;6:346-66.

14. Oche H, Oberem U, Greenblatt D. Nitrazepam clearance unimpaired in patients with renal insufficiency. *J Clin Psychopharmacol* 1992;12:183-5.
15. Ochs HR, Greenblatt DJ, Gugler R. Cimetidine impairs nitrazepam clearance. *Clin Pharm Ther* 1983;34:227-30.
16. Rieder J, Wendt G. Pharmacokinetics and metabolism of the hypnotic nitrazepam. In: Garattini S, Mussini E, Randall LO, ed., *The benzodiazepines*, Raven Press, New York 1973:99-127.

Clinical Hypnotic

17. Adam K, et al. Nitrazepam lastingly effective but trouble on withdrawal. *Brit Med J* 1976;1:1558-60.
18. Allnutt MF, O'Connor PJ. Comparison of the encephalographic, behavioral and subjective correlates of natural and drug-induced sleep at atypical hours. *Aerospace Med* 1971;42:1006-10.
19. Baruzzi A, Michelucci R, Tassinari C. Benzodiazepines. Nitrazepam antiepileptic drugs, Third Edition, Raven Press: New York, NY-US 1989;785-804.
20. Bordeleau JM, et al. Hypnotic properties of nitrazepam ('Nitrazadon'). *Dis Nerv Syst* 1970;31:318-25.
21. Cook PJ, Huggett A, Graham-Pole R, et al. Hypnotic accumulation and hangover in elderly inpatients: a controlled double-blind study of temazepam and nitrazepam. *Br Med J* 1983;286:100-2.
22. Haider I, Oswald I. Effects of amylobarbitone and nitrazepam on the electrodermogram and other features of sleep. *Brit J Psychiat*. 1971;118:519-22.
23. Kales A, et al. Rebound insomnia: a new clinical syndrome. *Science* 1978;201:1039-45.
24. Risberg AM, et al. Evaluation of the effect of fosazepam (a new benzodiazepine), nitrazepam and placebo on sleep patterns in normal subjects. *Eur J Clin Pharmacol* 1977;12:105-9.
25. Tada K, Nogami Y, Ishikawa K. The hypnotic and psychomotor effects of nitrazepam. *Neuroscience* 1991;17:401-8.

Clinical Anticonvulsant

26. Baldwin R, Kenny TJ, Segal J. The effectiveness of nitrazepam in a refractory epileptic population. *Curr Ther Res* 1969;11:413-7.
27. Jan JE, Riegl JA, Crichton JU, Dunn HG. Nitrazepam in the treatment of epilepsy in childhood. *Can Med Assoc J* 1971;104:571-5.
28. Markham CH. The treatment of myoclonic seizures of infancy and childhood with LA-1. *Pediatrics* 1964;34:511-8.
29. Snyder CH. Myoclonic epilepsy in children: short-term comparative study of two benzodiazepine derivatives in treatment. *South Med J* 1968;61:17-20.

PART III: CONSUMER INFORMATION

T/C **NITRAZADON[®]**
Nitrazepam Tablets; 5 mg, 10 mg

This leaflet is part III of a three-part "Product Monograph" published when Nitrazadon[®] was approved for sale in Canada and is designed specifically for Consumers. Please read this information before you start to take your medicine. Keep this leaflet until you have finished all your tablets, as you may need to read it again. This leaflet should not replace a discussion between you and your doctor about the risks and benefits of Nitrazadon[®]. This leaflet is a summary and will not tell you everything about Nitrazadon[®]. Contact your doctor or pharmacist if you have any questions about the drug.

ABOUT THIS MEDICATION**What the medication is used for:**

- ‘Nitrazadon’ is intended to help you sleep if you have transient and short-term insomnia. Symptoms of insomnia include difficulty in falling asleep, waking up often during the night or too early in the morning. Treatment with ‘Nitrazadon’ should usually not go on for more than 7-10 days and should be restricted for insomnia where disturbed sleep results in impaired daytime functioning. ‘Nitrazadon’ does not treat the underlying cause of your insomnia.
- ‘Nitrazadon’ is also useful for the management of myoclonic seizures.

What it does:

‘Nitrazadon’ is one of several benzodiazepine sleeping pills that have generally similar properties such as a calming effect.

If you are prescribed one of these medications, you should consider both their benefits and risks. Important risks and limitations include the following:

- the longer you use the medication, the less effective it may become,
- you may become dependent on the medication,
- the medication may affect your mental alertness or memory, particularly when not taken as prescribed.

(see “WARNINGS AND PRECAUTIONS”)

When it should not be used:

Do not take ‘Nitrazadon’ if you have:

- known allergy to nitrazepam or other benzodiazepines, or to any of the ingredients ‘Nitrazadon’ contains (see “**What the nonmedicinal ingredients are**”)
- severe lung or respiratory disease, including sleep apnea

- myasthenia gravis, a chronic disease characterized by weakness of the skeletal muscles.
- a severe liver condition.

‘Nitrazadon’ is not to be used for insomnia in children under 18 years of age.

What the medicinal ingredient is:

The medicinal ingredient in ‘Nitrazadon’ is nitrazepam.

What the non-medicinal ingredients are:

‘Nitrazadon’ tablets contain the following non-medicinal ingredients: cellulose microcrystalline, lactose, magnesium stearate, and croscarmellose sodium.

What dosage forms it comes in:

‘Nitrazadon’ is available in tablets of 5 mg and 10 mg strengths for oral administration.

WARNINGS AND PRECAUTIONS**Complex sleep-related behaviours:**

There have been reports of people getting out of bed while not fully awake after taking ‘Nitrazadon’ and doing activities that they did not know they were doing. The next morning, they did not remember doing those activities. This unusual behaviour is more likely to occur when ‘Nitrazadon’ is taken with alcohol or other drugs that can make you sleepy such as those for the treatment of depression or anxiety. The activities you may do in these situations can put you and people around you in danger. Reported activities included driving a car (“sleep-driving”), leaving the house, making and eating food, talking on the phone, etc.

Important:

1. Do not take more ‘Nitrazadon’ than prescribed.
2. Do not take ‘Nitrazadon’ if you drink alcohol.
3. Talk to your doctor about all of your medicines, including over-the-counter medicines and herbal products. Your doctor will tell you if you can take ‘Nitrazadon’ with your other medicines.
4. You and people close to you should watch for the type of unusual behaviour described above. If you find out that you have done *any* such activities for which you have no memory you should call your doctor immediately.

Mental Alertness: ‘Nitrazadon’ may affect your ability to be alert. **DO NOT DRIVE A CAR** or operate potentially dangerous machinery until you experience how this drug will affect you.

Memory Problems:

All benzodiazepine sleeping pills can cause a special type of memory loss (amnesia); you may not recall events that occurred during some period of time, usually several hours, after taking the

drug. This lapse is usually not a problem, because the person taking the sleeping pill intends to be asleep during this critical period of time. But it can be a problem if you take the medication to induce sleep while travelling, such as during an airplane flight, because you may wake up before the effect of the drug is gone. This has been called “traveler’s amnesia” DO NOT TAKE ‘Nitrazadon’ when a full night’s sleep is not possible before you would again need to be active and functional; e.g., an overnight flight of less than 8 hours. Memory lapses may occur in such situations. Your body needs time to eliminate the medication from your system.

Tolerance/Withdrawal Symptoms:

After nightly use for more than a few weeks benzodiazepines may lose some of their effectiveness. You may also develop a degree of dependence.

“Withdrawal” effects can occur when patients stop taking benzodiazepine sleeping pills. The effects may occur following use for only a week or two but may be more common and severe after long periods of continuous use. For example, you may experience an increase in sleep difficulties (rebound insomnia) and/or increased daytime anxiety (rebound anxiety) for one or two days after discontinuing ‘Nitrazadon’.

Other withdrawal symptoms, similar in character to those noted with barbiturates and alcohol (convulsions, tremor, abdominal and muscle cramps, vomiting, sweating, dysphoria, perceptual disturbances, insomnia, headache, extreme anxiety, tension, restlessness, confusion and irritability) have occurred following abrupt discontinuation of benzodiazepines, and may follow the discontinuation of ‘Nitrazadon’. In severe cases, the following symptoms may occur: sense of detachment from one’s surroundings, unreal feeling with a sensation that the extremities have changed in size, abnormal sensitivity to sound, numbness and tingling of the extremities, hypersensitivity to light, noise and physical contact, hallucinations and epileptic seizures. The more severe symptoms are usually associated with higher dosages and longer usage.

Dependence/Abuse:

All benzodiazepine sleeping pills can cause dependence (addiction) especially when used regularly for more than a few weeks, or at higher doses. Some people develop a need to continue taking these drugs, either at the prescribed dose or at higher doses - not only for continued therapeutic effect, but also to avoid withdrawal symptoms or to achieve non-therapeutic effects.

Individuals who depend, or have depended at any time in the past, on alcohol or other drugs may be at particular risk of becoming dependent on drugs of this class. But ALL PEOPLE ARE AT SOME RISK. Consider this matter before you take these medications beyond a few weeks.

Mental and Behavioural Changes:

A variety of abnormal thinking and behaviour changes may occur when you use benzodiazepine sleeping pills. Some of these changes include aggressiveness and extroversion which seem out of character. Other changes, although rare, can be more unusual and extreme such as confusion, strange behaviour, restlessness,

illusions, hallucinations, feeling like you are not yourself, worsening insomnia and worsening depression, including suicidal thinking.

It is rarely clear whether such symptoms are caused by the medication, or by an illness that was present before the medication was used, or are simply spontaneous happenings. If you develop any unusual disturbing thoughts or behaviour while using ‘Nitrazadon’, discuss the matter immediately with your doctor.

Excessive Salivation:

On rare occasions in infants and young children, as well as elderly, bed-ridden patients, there may be excessive secretion of saliva and fluid in the lungs which may lead to chest infections.

Worsening of Side Effects:

DO NOT CONSUME ALCOHOL WHILE TAKING ‘Nitrazadon’. Some medicines may also worsen side effects that some patients experience with ‘Nitrazadon’ (see “INTERACTIONS WITH THIS MEDICATION”).

Elderly: An increased risk of falls and fractures has been reported in elderly people who take benzodiazepines such as ‘Nitrazadon’.

Effects on Pregnancy:

Certain benzodiazepine sleeping pills have been linked to birth defects when taken during the early months of pregnancy. In addition, benzodiazepine sleeping pills taken during the last weeks of pregnancy have been known to sedate the baby and may also cause withdrawal symptoms after birth. DO NOT TAKE ‘Nitrazadon’ at any time during pregnancy.

BEFORE you use ‘Nitrazadon’ talk to your doctor or pharmacist if:

- You have a lung disease or breathing problems.
- You have liver or kidney condition.
- You have a history of depression and/or suicide thoughts or attempts.
- You have had unexpected reactions to alcohol or sedative medications in the past, such as irritability, aggression, hallucinations, etc.
- You have a history of drug or alcohol abuse or addiction.
- You are planning to become pregnant, you are pregnant, or you become pregnant while taking this medication.
- You are breastfeeding.
- You consume alcohol.
- You are taking other medicines, including drugs you can buy without a prescription.
- You have lactose intolerance.

INTERACTIONS WITH THIS MEDICATION

‘Nitrazadon’ may produce more pronounced side effects when co-administered with alcohol, other tranquilizers or sleeping pills, sedative antihistamines, narcotic analgesics, anticonvulsants, antipsychotics (neuroleptics), anesthetics, or antidepressant agents

or psychotropic medications which themselves can make you sleepy.

Compounds which inhibit certain hepatic enzymes (particularly cytochrome P450) may enhance the activity of benzodiazepines and benzodiazepine-like agents. Examples include cimetidine or erythromycin.

Do not take 'Nitrazadon' if you drink alcohol. DO NOT USE 'Nitrazadon' along with other medications without first discussing this with your doctor.

PROPER USE OF THIS MEDICATION

Benzodiazepine sleeping pills are effective medications and are relatively free of serious problems when used for the short-term management of insomnia. Insomnia may last only for a short time and may respond to brief treatment. The risks and benefits of prolonged use should be discussed with your doctor.

Usual dose in Insomnia:

'Nitrazadon' is a prescription medication intended to help you sleep. Follow your doctor's advice about how to take 'Nitrazadon', when to take it, and how long to take it.

Adults: The usual adult dose is 5 or 10 mg before retiring.

Elderly and/or Debilitated Patients: It is recommended that in these patients therapy be initiated with 2.5 mg until individual responses are determined. Doses higher than 5 mg are usually not recommended in the elderly.

DO NOT TAKE 'Nitrazadon' if it is not prescribed for you.

DO NOT TAKE 'Nitrazadon' for more than 7-10 days without first consulting your doctor. If you still have problems sleeping after you finish your tablets, contact your doctor again.

The lowest effective dose should be used.
DO NOT INCREASE THE PRESCRIBED DOSE.

Do not take 'Nitrazadon' if you drink alcohol.

Do not take 'Nitrazadon' when a full night's sleep is not possible before you would again need to be active and functional.

Do not drive a car or operate potentially dangerous machinery until you experience how 'Nitrazadon' will affect you the next day.

'Nitrazadon' is not for use for insomnia in children under 18 years of age.

Overdose:

The principal manifestations of overdosage are drowsiness, confusion, reduced reflexes, increasing sedation, and coma. Effects

on respiration, pulse and blood pressure are noticed with large overdoses. Patients exhibit some jitteriness and over stimulation usually when the effects of the drug begin to wear off.

Contact your doctor, regional Poison Control Centre or pharmacist immediately if you suspect you have taken an overdose or someone else accidentally takes your 'Nitrazadon'. If you are unable to contact them, go to a hospital emergency department for medical help, even though you may not feel sick. Show your doctor your bottle of tablets.

Missed Dose:

If you forget to take 'Nitrazadon' tablets, do not take a double dose to make up for the forgotten individual dose. Take the next dose at the usual time.

SIDE EFFECTS AND WHAT TO DO ABOUT THEM

Common Side Effects:

Benzodiazepine sleeping pills may cause drowsiness, dizziness, light-headedness, and difficulty with coordination. Users must be cautious about engaging in hazardous activities requiring complete mental alertness, e.g., operating machinery or driving a motor vehicle.

DO NOT drink alcohol while using 'Nitrazadon'. DO NOT USE 'Nitrazadon' along with other medications without first discussing this with your doctor.

How sleepy you are the day after you use one of these sleeping pills depends on your individual response and on how quickly your body gets rid of the medication. The larger the dose, the more likely that you will experience drowsiness, etc., the next day. For this reason, it is important that you use the lowest dose possible that will still help you sleep at night. Benzodiazepines which are eliminated rapidly tend to cause less drowsiness the next day, but may cause withdrawal problems the day after use.

Elderly patients are especially susceptible to side effects. Excessive drowsiness in the elderly may result in falls and fractures.

Rare cases of severe allergic reactions have been reported. Symptoms may include swelling of the tongue or throat, trouble breathing, and nausea and vomiting. Get emergency medical help if you get these symptoms after taking 'Nitrazadon'.

Withdrawal-related side effects: See "WARNINGS AND PRECAUTIONS, **Tolerance/Withdrawal Symptoms**".

SERIOUS SIDE EFFECTS, HOW OFTEN THEY HAPPEN AND WHAT TO DO ABOUT THEM

Symptom / effect		Talk with your doctor or pharmacist		Seek urgent medical attention
		Only if severe	In all cases	
Rare	Unexpected reactions such as agitation, hyperactivity, excitement, hallucination, worsened insomnia, increased muscle spasticity, aggressiveness, irritability, rages, psychoses and violent behaviour		✓	
	Severe allergic reactions (swelling of the tongue or throat, trouble breathing, nausea and vomiting)			✓
	Depressed mood; thoughts of death or suicide		✓	
Very Rare	Somnambulism (sleepwalking) – getting out of bed while not fully awake and do activities you do not remember the day after		✓	

This is not a complete list of side effects. For any unexpected effects while taking 'Nitrazadon', contact your doctor or pharmacist.

HOW TO STORE IT

Store at controlled room temperature (15-30°C). Protect from light. The medicine should not be used after the expiry date (EXP) shown on the pack.

Keep out of reach of children.

REPORTING SUSPECTED SIDE EFFECTS

You can report any suspected adverse reactions associated with the use of health products to the Canada Vigilance Program by one of the following 3 ways:

Report online at www.healthcanada.gc.ca/medeffect

Call toll-free at 1-866-234-2345

Complete a Canada Vigilance Reporting Form and:

- Fax toll-free to 1-866-678-6789, or
- Mail to: Canada Vigilance Program
Health Canada
Postal Locator 0701E
Ottawa, Ontario
K1A 0K0

Postage paid labels, Canada Vigilance Reporting Form and the adverse reaction reporting guidelines are available on the MedEffect™ Canada Web site at www.healthcanada.gc.ca/medeffect.

NOTE: Should you require information related to the management of side effects, contact your health professional. The Canada Vigilance Program does not provide medical advice.

MORE INFORMATION

For more information, please contact your doctor, pharmacist or other healthcare professional.

This leaflet plus the full product monograph, prepared for health professionals, can be obtained by contacting the sponsor, AA Pharma Inc. at:

1-877-998-9097

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