

## PRODUCT MONOGRAPH

### <sup>N</sup>**BAR-HYDROmorphone CR**

HYDROmorphone\* Hydrochloride Controlled Release Capsules  
3, 4.5, 6, 9, 12, 18, 24 and 30 mg

Mfr. Std.

Opioid Analgesic

Bard Pharmaceuticals (1990) Inc.  
580 Granite Court  
Pickering, Ontario  
L1W 3W8

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\* HYDROmorphone is the name of the active chemical ingredient (hydromorphone) and is not a brandname/tradename.

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**<sup>N</sup>BAR-HYDROmorphone CR**  
(HYDROmorphone hydrochloride controlled release capsules)

**PART I: HEALTH PROFESSIONAL INFORMATION**

**SUMMARY PRODUCT INFORMATION**

<b>Route of Administration</b>	<b>Dosage Form / Strength</b>	<b>Non-medicinal Ingredients</b>
Oral	Controlled Release Capsules / 3, 4.5, 6, 9, 12, 18, 24 and 30 mg	Colloidal silicon dioxide, dibutyl sebacate, ethyl cellulose, gelatin, hydroxypropyl methylcellulose, microcrystalline cellulose and titanium dioxide 3 mg: D&C Yellow No.10, FD&C Green No.3 4.5 mg: FD&C Blue No.1, FD&C Red No.3 6 mg: D&C Red No.28, FD&C Blue No.1, FD&C Red No.40 9 mg: FD&C Blue No.1 12 mg: D&C Red No.28, D&C Yellow No.10, FD&C Blue No.1, FD&C Red No.40 18 mg: yellow iron oxide 24 mg: black iron oxide 30 mg: FD&C Red No.3, red iron oxide, yellow iron oxide

**INDICATIONS AND CLINICAL USE**

**Adults:** **BAR-HYDROmorphone CR** (HYDROmorphone hydrochloride controlled release capsules) is indicated for the management of pain severe enough to require daily, continuous, long-term opioid treatment, and:

- that is opioid-responsive; and
- for which alternative options are inadequate.

**BAR-HYDROmorphone CR** is not indicated as an as-needed (prn) analgesic.

**Geriatrics (> 65 years of age):** In general, dose selection for an elderly patient should be cautious, usually starting at the low end of the dosing range, reflecting the greater frequency of decreased hepatic, renal or cardiac function, concomitant disease or other drug therapy (see **DOSAGE AND ADMINISTRATION**).

**Pediatrics (< 18 years of age):** The safety and efficacy of **BAR-HYDROmorphone CR** has not been studied in the pediatric population. Therefore the use of **BAR-HYDROmorphone CR** is not recommended in patients under 18 years of age.

## CONTRAINDICATIONS

**BAR-HYDROmorphone CR** (HYDROmorphone hydrochloride controlled release capsules) is contraindicated in:

- Patients who are hypersensitive to the active substance (HYDROmorphone) or other opioid analgesics, or to any ingredient in the formulation. For a complete listing, see the **DOSAGE FORMS, COMPOSITION AND PACKAGING** section of the Product Monograph.
- Patients with known or suspected mechanical gastrointestinal obstruction (e.g., bowel obstruction or strictures) or any diseases/conditions that affect bowel transit (e.g., ileus of any type).
- Patients with suspected surgical abdomen (e.g., acute appendicitis or pancreatitis).
- Patients with mild, intermittent or short duration pain that can be managed with other pain medications.
- The management of acute pain, including use in outpatient or day surgeries.
- The management of peri-operative pain.
- Patients with acute or severe bronchial asthma, chronic obstructive airway, or status asthmaticus.
- Patients with acute respiratory depression or elevated carbon dioxide levels in the blood and cor pulmonale.
- Patients with acute alcoholism, delirium tremens, and convulsive disorders.
- Patients with severe CNS depression, increased cerebrospinal or intracranial pressure, and head injury.
- Patients taking monoamine oxidase (MAO) inhibitors (or within 14 days of such therapy).
- Women who are breast-feeding, pregnant, or during labour and delivery (see **SERIOUS WARNINGS AND PRECAUTIONS** and **WARNINGS AND PRECAUTIONS**).

## WARNINGS AND PRECAUTIONS

### Serious Warnings and Precautions

#### Limitations of Use

Because the risks of addiction, abuse, and misuse with opioids, even at recommended doses, and because of the greater risks of overdose and death with controlled release opioid formulations, BAR-HYDROmorphine CR (HYDROmorphine hydrochloride controlled release capsules) should only be used in patients for whom alternative treatment options (e.g., non-opioid analgesics) are ineffective, not tolerated, or would be otherwise inadequate to provide appropriate management of pain (see DOSAGE AND ADMINISTRATION).

#### Addiction, Abuse, and Misuse

BAR-HYDROmorphine CR poses risks of opioid addiction, abuse, and misuse, which can lead to overdose and death. Each patient's risk should be assessed prior to prescribing BAR-HYDROmorphine CR, and all patients should be monitored regularly for the development of these behaviours or conditions (see WARNINGS AND PRECAUTIONS). BAR-HYDROmorphine CR should be stored securely to avoid theft or misuse.

#### Life-threatening Respiratory Depression: OVERDOSE

Serious, life-threatening, or fatal respiratory depression may occur with use of BAR-HYDROmorphine CR. Infants exposed in-utero or through breast milk are at risk of life-threatening respiratory depression upon delivery or when nursed. Patients should be monitored for respiratory depression, especially during initiation of BAR-HYDROmorphine CR or following a dose increase. Instruct patients to swallow BAR-HYDROmorphine CR capsules whole or to sprinkle the contents of the capsule on applesauce or custard and swallow immediately without chewing. Cutting, breaking, crushing, chewing, or dissolving BAR-HYDROmorphine CR can lead to rapid release and absorption of a potentially fatal dose of HYDROmorphine (see WARNINGS AND PRECAUTIONS). Further, instruct patients of the hazards related to taking opioids including fatal overdose.

#### Accidental Exposure

Accidental ingestion of even one dose of BAR-HYDROmorphine CR, especially by children, can result in a fatal overdose of HYDROmorphine (see DOSAGE AND ADMINISTRATION, Disposal, for instructions on proper disposal).

#### Neonatal Opioid Withdrawal Syndrome

Prolonged maternal use of BAR-HYDROmorphine CR during pregnancy can result in neonatal opioid withdrawal syndrome, which may be life-threatening (see WARNINGS AND PRECAUTIONS).

#### Interaction with Alcohol

The co-ingestion of alcohol with BAR-HYDROmorphine CR should be avoided as it

may result in dangerous additive effects, causing serious injury or death (see WARNINGS AND PRECAUTIONS and DRUG INTERACTIONS).

**Risks From Concomitant Use With Benzodiazepines Or Other CNS Depressants**

Concomitant use of opioids with benzodiazepines or other CNS depressants, including alcohol, may result in profound sedation, respiratory depression, coma, and death (see WARNINGS AND PRECAUTIONS, Neurologic and DRUG INTERACTIONS).

- Reserve concomitant prescribing of BAR-HYDROmorphone CR and benzodiazepines or other CNS depressants for use in patients for whom alternative treatment options are inadequate.
- Limit dosages and durations to the minimum required.
- Follow patients for signs and symptoms of respiratory depression and sedation.

**General**

BAR-HYDROmorphone CR must be swallowed whole, or opened and the entire contents sprinkled onto a tablespoonful of applesauce or custard (see DOSAGE AND ADMINISTRATION). The entire contents of the tablespoon of food and HYDROmorphone mixture should be swallowed as soon as possible after sprinkling and should be discarded if not consumed. The food/drug mixture should not be chewed, and the ingestion should be followed by rinsing the mouth with fluids to ensure that the entire contents are swallowed. Taking broken, chewed, dissolved or crushed capsules, or their contents, could lead to the rapid release and absorption of a potentially fatal dose of HYDROmorphone.

Despite data demonstrating the bioequivalence of BAR-HYDROmorphone CR after sprinkling capsule contents on selected soft foods for up to 30 minutes (see ACTION AND CLINICAL PHARMACOLOGY – Pharmacokinetics), sprinkled doses should be ingested as soon as possible to avoid errors from the loss of product identification features after removal of beads from the capsule shell. After sprinkling, if unsure of the elapsed time or which food sample contains the mixture, discard all implicated food samples.

BAR-HYDROmorphone CR 18 mg, 24 mg and 30 mg capsules, or a single dose greater than 12 mg are for use in opioid tolerant patients only (see also DOSAGE AND ADMINISTRATION). A single dose greater than 12 mg, or total daily doses greater than 24 mg of BAR-HYDROmorphone CR, may cause fatal respiratory depression when administered to patients who are not tolerant to the respiratory depressant effects of opioids. Care should be taken in the prescribing of these capsule strengths (see WARNINGS AND PRECAUTIONS and DRUG INTERACTIONS).

Patients should be instructed not to give BAR-HYDROmorphone CR to anyone other than the patient for whom it was prescribed, as such inappropriate use may have severe medical consequences, including death. BAR-HYDROmorphone CR should be stored securely to avoid theft or misuse.

**BAR-HYDROmorphone CR should be prescribed only by healthcare professionals who are knowledgeable in the use of potent opioids for the management of chronic pain.**

Patients should be cautioned not to consume alcohol while taking **BAR-HYDROmorphone CR**, as it may increase the chance of experiencing dangerous side effects (see **DRUG INTERACTIONS**).

Hyperalgesia that will not respond to a further dose increase of HYDROmorphone may occur at particularly high doses. A HYDROmorphone dose reduction or change in opioid may be required.

### **Addiction, Abuse and Misuse**

Like all opioids, **BAR-HYDROmorphone CR** is a potential drug of abuse and misuse, which can lead to overdose and death. Therefore, **BAR-HYDROmorphone CR** should be prescribed and handled with caution.

Patients should be assessed for their clinical risks for opioid abuse or addiction prior to being prescribed opioids. All patients receiving opioids should be routinely monitored for signs of misuse and abuse.

Opioids, such as **BAR-HYDROmorphone CR**, should be used with particular care in patients with a history of alcohol and illicit/prescription drug abuse. However, concerns about abuse, addiction, and diversion should not prevent the proper management of pain.

With parenteral abuse, the capsule excipients can be expected to result in local tissue necrosis, infection, pulmonary granulomas, and increased risk of endocarditis and valvular heart injury.

### **Cardiovascular**

**Hypotension:** HYDROmorphone, may result in severe hypotension in patients whose ability to maintain adequate blood pressure is compromised by reduced blood volume, or the concurrent administration of drugs such as phenothiazines and other tranquilizers, sedatives, hypnotics, tricyclic antidepressants or certain anesthetics (see also **DRUG INTERACTIONS**). These patients should be monitored for signs of hypotension after initiating or titrating the dose of **BAR-HYDROmorphone CR**. The use of **BAR-HYDROmorphone CR** in patients with circulatory shock should be avoided as it may cause vasodilation that can further reduce cardiac output and blood pressure. HYDROmorphone may also produce orthostatic hypotension in ambulatory patients.

### **Dependence/Tolerance**

As with other opioids, tolerance and physical dependence may develop upon repeated administration of HYDROmorphone and there is a potential for development of psychological dependence.

Physical dependence and tolerance reflect the neuroadaptation of the opioid receptors to chronic exposure to an opioid, and are separate and distinct from abuse and addiction. Tolerance, as well

as physical dependence, may develop upon repeated administration of opioids, and are not by themselves evidence of an addictive disorder or abuse.

Patients on prolonged therapy should be tapered gradually from the drug if it is no longer required for pain control. Withdrawal symptoms may occur following abrupt discontinuation of therapy or upon administration of an opioid antagonist (see **DOSAGE AND ADMINISTRATION, Adjustment or Reduction of Dosage**). Some of the symptoms that may be associated with abrupt withdrawal of an opioid analgesic include body aches, diarrhea, gooseflesh, loss of appetite, nausea, nervousness or restlessness, anxiety, runny nose, sneezing, tremors or shivering, stomach cramps, tachycardia, trouble with sleeping, unusual increase in sweating, palpitations, unexplained fever, weakness and yawning.

Physical dependence with or without psychological dependence tends to occur with chronic administration. An abstinence syndrome may be precipitated when opioid administration is discontinued or opioid antagonists administered. The following withdrawal symptoms may be observed after opioids are discontinued: body aches, diarrhea, gooseflesh, loss of appetite, nausea, nervousness or restlessness, runny nose, sneezing, tremors or shivering, stomach cramps, tachycardia, trouble with sleeping, unusual increase in sweating, palpitations, unexplained fever, weakness and yawning. In patients who are appropriately treated with opioid analgesics and who undergo gradual withdrawal from the drug, these symptoms are usually mild.

### **Use in Drug and Alcohol Addiction**

**BAR-HYDROmorphone CR** is an opioid with no approved use in the management of addictive disorders. Its proper usage in individuals with drug or alcohol dependence, either active or in remission is for the management of pain requiring opioid analgesia. Patients with a history of addiction to drugs or alcohol may be at higher risk of becoming addicted to **BAR-HYDROmorphone CR** unless used under extreme caution and awareness.

### **Endocrine**

#### **Adrenal Insufficiency**

Cases of adrenal insufficiency have been reported with opioid use, more often following greater than one month of use. Presentation of adrenal insufficiency may include non-specific symptoms and signs including nausea, vomiting, anorexia, fatigue, weakness, dizziness, and low blood pressure. If adrenal insufficiency is suspected, confirm the diagnosis with diagnostic testing as soon as possible. If adrenal insufficiency is diagnosed, treat with physiologic replacement doses of corticosteroids. Wean the patient off of the opioid to allow adrenal function to recover and continue corticosteroid treatment until adrenal function recovers. Other opioids may be tried as some cases reported use of a different opioid without recurrence of adrenal insufficiency. The information available does not identify any particular opioids as being more likely to be associated with adrenal insufficiency.

### **Gastrointestinal**

**Acute Abdominal Conditions:** HYDROmorphone (and other morphine-like opioids) have been shown to decrease bowel motility. HYDROmorphone may obscure the diagnosis or clinical course of patients with acute abdominal conditions and is also contraindicated in patients with paralytic



ileus, appendicitis and pancreatitis. HYDROmorphone may cause spasm of the sphincter of Oddi. Monitor patients with biliary tract disease for worsening symptoms.

### **Neonatal Opioid Withdrawal Syndrome (NOWS)**

Prolonged maternal use of opioids during pregnancy can result in withdrawal signs in the neonate. Neonatal opioid withdrawal syndrome, unlike opioid withdrawal syndrome in adults, may be life-threatening.

Neonatal opioid withdrawal syndrome presents as irritability, hyperactivity and abnormal sleep pattern, high pitched cry, tremor, vomiting, diarrhea and failure to gain weight. The onset, duration, and severity of neonatal opioid withdrawal syndrome vary based on the specific opioid used, duration of use, timing and amount of last maternal use, and rate of elimination of the drug by the newborn.

Use of **BAR-HYDROmorphone CR** is contraindicated in pregnant women (see **CONTRAINDICATIONS**).

### **Neurologic**

**Interactions with Central Nervous System Depressants (including benzodiazepines and alcohol):** **BAR-HYDROmorphone CR** should be used with caution and in a reduced dosage during concomitant administration of other opioid analgesics, general anaesthetics, phenothiazines and other tranquilizers, sedatives, hypnotics, antidepressants, antipsychotics, antihistamines, benzodiazepines, centrally-active anti-emetics and other CNS depressants. Respiratory depression, hypotension and profound sedation, coma or death may result. When such combination therapy is contemplated, a substantial reduction in the dose of one or both agents should be considered and patients should be carefully monitored. **BAR-HYDROmorphone CR** should not be consumed with alcohol as it may increase the chance of experiencing dangerous side effects (see **DRUG INTERACTIONS**).

Observational studies have demonstrated that concomitant use of opioid analgesics and benzodiazepines increases the risk of drug-related mortality compared to use of opioid analgesics alone. Because of similar pharmacological properties, it is reasonable to expect similar risk with the concomitant use of other CNS depressant drugs with opioid analgesics (see **DRUG INTERACTIONS**). If the decision is made to prescribe a benzodiazepine or other CNS depressant concomitantly with an opioid analgesic, prescribe the lowest effective dosages and minimum durations of concomitant use. In patients already receiving an opioid analgesic, prescribe a lower initial dose of the benzodiazepine or other CNS depressant than indicated in the absence of an opioid, and titrate based on clinical response. If an opioid analgesic is initiated in a patient already taking a benzodiazepine or other CNS depressant, prescribe a lower initial dose of the opioid analgesic, and titrate based on clinical response. Follow patients closely for signs and symptoms of respiratory depression and sedation.

Advise both patients and caregivers about the risks of respiratory depression and sedation when **BAR-HYDROmorphone CR** is used with benzodiazepines or other CNS depressants (including alcohol and illicit drugs). Advise patients not to drive or operate heavy machinery until the effects of concomitant use of the benzodiazepine or other CNS depressant have been determined.

Screen patients for risk of substance use disorders, including opioid abuse and misuse, and warn them of the risk for overdose and death associated with the use of additional CNS depressants including alcohol and illicit drugs (see **DRUG INTERACTIONS**).

**BAR-HYDROmorphone CR** should not be consumed with alcohol as it may increase the chance of experiencing dangerous side effects, including death (see **CONTRAINDICATIONS** and **ADVERSE REACTIONS, Sedation** and **DRUG INTERACTIONS**).

Severe pain antagonizes the subjective and respiratory depressant actions of opioid analgesics. Should pain suddenly subside, these effects may rapidly become manifest.

**Use in Patients with Convulsive or Seizure Disorders:** The HYDROmorphone in **BAR-HYDROmorphone CR** may aggravate convulsions in patients with convulsive disorders, and may induce or aggravate seizures in some clinical settings. Therefore, **BAR-HYDROmorphone CR** should not be used in these patients (see **CONTRAINDICATIONS**).

**Serotonin syndrome:** **BAR-HYDROmorphone CR** could cause a rare but potentially life-threatening condition resulting from concomitant administration of serotonergic drugs (e.g. anti-depressants, migraine medications). Treatment with the serotonergic drug should be discontinued if such events (characterized by clusters of symptoms such as hyperthermia, rigidity, myoclonus, autonomic instability with possible rapid fluctuations of vital signs, mental status changes including confusion, irritability, extreme agitation progressing to delirium and coma) occur and supportive symptomatic treatment should be initiated. **BAR-HYDROmorphone CR** should not be used in combination with MAO inhibitors or serotonin-precursors (such as L-tryptophan, oxitriptan) and should be used with caution in combination with other serotonergic drugs (triptans, certain tricyclic antidepressants, lithium, tramadol, St. John's Wort) due to the risk of serotonergic syndrome (see **DRUG INTERACTIONS**).

**Head Injury:** The respiratory depressant effects of HYDROmorphone with carbon dioxide retention and secondary elevation of cerebrospinal fluid pressure may be markedly exaggerated in the presence of head injury, other intracranial lesions, or pre-existing increase in intracranial pressure. Opioid analgesics, including HYDROmorphone may produce effects which can obscure the clinical course and neurologic signs of further increase in intracranial pressure in patients with head injuries. In such patients, HYDROmorphone should not be used.

#### **Peri-Operative Considerations**

**BAR-HYDROmorphone CR** is contraindicated for peri-operative pain relief unless gastrointestinal function is normal. In the case of planned cordotomy or other pain-relieving operations, patients should not be treated with **BAR-HYDROmorphone CR** for at least 48 hours before the operation and **BAR-HYDROmorphone CR** should not be used within the first 24 hours post-operatively. Thereafter, if **BAR-HYDROmorphone CR** is to be continued after the patient recovers from the post-operative period, a new dosage should be administered in accordance with the changed need for pain relief. The risk of withdrawal in opioid-tolerant patients should be addressed as clinically indicated.

The administration of analgesics in the peri-operative period should be managed by healthcare providers with adequate training and experience (e.g., by an anesthesiologist) (see **CONTRAINDICATIONS**).

### **Psychomotor Impairment**

HYDROmorphone may impair the mental and/or physical abilities needed for certain potentially hazardous activities such as driving a car or operating machinery. Patients should be cautioned accordingly. Patients should also be cautioned about the combined effects of HYDROmorphone with other CNS depressants, including other opioids, phenothiazines, sedatives, hypnotics and alcohol.

### **Respiratory**

**Respiratory Depression:** Serious, life-threatening, or fatal respiratory depression has been reported with the use of opioids, even when used as recommended. Respiratory depression from opioid use, if not immediately recognized and treated, may lead to respiratory arrest and death. Management of respiratory depression may include close observation, supportive measures, and use of opioid antagonists, depending on the patient's clinical status. Carbon dioxide (CO<sub>2</sub>) retention from opioid-induced respiratory depression can exacerbate the sedating effects of opioids.

While serious, life-threatening, or fatal respiratory depression can occur at any time during the use of **BAR-HYDROmorphone CR**, the risk is greatest during the initiation of therapy or following a dose increase. Patients should be closely monitored for respiratory depression when initiating therapy with **BAR-HYDROmorphone CR** and following dose increases.

To reduce the risk of respiratory depression, proper dosing and titration of **BAR-HYDROmorphone CR** are essential (see **DOSAGE AND ADMINISTRATION**). Overestimating the **BAR-HYDROmorphone CR** dose when converting patients from another opioid product can result in fatal overdose with the first dose.

Respiratory depression occurs most frequently in overdose, the elderly, in the debilitated, and in those suffering from conditions accompanied by hypoxia or hypercapnia, when even moderate therapeutic doses may dangerously decrease pulmonary ventilation. This effect may be lessened by careful dose titration as severe pain can antagonize the respiratory depressant action of HYDROmorphone.

### **Use in Patients with Chronic Pulmonary Disease**

Monitor patients with significant chronic obstructive pulmonary disease or cor pulmonale, and patients having a substantially decreased respiratory reserve, hypoxia, hypercapnia, or pre-existing respiratory depression for respiratory depression, particularly when initiating therapy and titrating with **BAR-HYDROmorphone CR**, as in these patients, even usual therapeutic doses of **BAR-HYDROmorphone CR** may decrease respiratory drive to the point of apnea. In these patients, use of alternative non-opioid analgesics should be considered, if possible.

### **Patient Counselling Information**

A patient information sheet should be provided to patients when **BAR-HYDROmorphone CR** capsules are dispensed to them.

Patients receiving **BAR-HYDROmorphone CR** should be given the following instructions by the physician:

1. Patients should be informed that accidental ingestion or use by individuals (including children) other than the patient for whom it was originally prescribed, may lead to severe, even fatal consequences. **BAR-HYDROmorphone CR** should be kept under lock and out of sight and out of reach of children.
2. Patients should be advised that **BAR-HYDROmorphone CR** contains HYDROmorphone, an opioid pain medicine.
3. Patients should be advised that **BAR-HYDROmorphone CR** should only be taken as directed. The dose of **BAR-HYDROmorphone CR** should not be adjusted without consulting with a physician.
4. **BAR-HYDROmorphone CR** capsules should not be broken, chewed, dissolved or crushed, due to the risk of fatal HYDROmorphone overdose.
5. **BAR-HYDROmorphone CR** should be swallowed whole or opened and the contents sprinkled onto a tablespoonful of warm or cold (4° - 40°C) applesauce or room temperature custard. The entire contents of the tablespoon of food and HYDROmorphone mixture should be swallowed as soon as possible after sprinkling and should be discarded if not consumed. The food/drug mixture should not be chewed, and the ingestion should be followed rinsing the mouth with fluids to ensure that the entire contents are swallowed.
6. Patients should be advised to report episodes of pain and adverse experiences occurring during therapy. Individualization of dosage is essential to make optimal use of this medication.
7. Patients should not combine **BAR-HYDROmorphone CR** with alcohol or other central nervous system depressants (sleep aids, tranquilizers) because dangerous additive effects may occur, resulting in serious injury or death.
8. Patients should be advised to consult their physician or pharmacist if other medications are being used or will be used with **BAR-HYDROmorphone CR**.
9. Patients should be advised that if they have been receiving treatment with **BAR-HYDROmorphone CR** and cessation of therapy is indicated, it may be appropriate to taper **BAR-HYDROmorphone CR** dose, rather than abruptly discontinue it, due to the risk of precipitating withdrawal symptoms.

10. Patients should be advised of the most common adverse reactions that may occur while taking **BAR-HYDROmorphone CR**: asthenia, confusion, constipation, dizziness, light-headedness, nausea, sedation, somnolence, hyperhidrosis and vomiting. If symptoms worsen, seek immediate medical attention.
11. Patients should be advised that **BAR-HYDROmorphone CR** may cause drowsiness, dizziness or light-headedness and may impair mental and/or physical ability required for the performance of potentially hazardous tasks (e.g., driving, operating machinery). Patients started on **BAR-HYDROmorphone CR** or patients whose dose has been adjusted should be advised not to drive a car or operate machinery unless they are tolerant to the effects of **BAR-HYDROmorphone CR**.
12. Patients should be advised that **BAR-HYDROmorphone CR** is a potential drug of abuse. They should protect it from theft or misuse.
13. Patients should be advised that **BAR-HYDROmorphone CR** should never be given to anyone other than the individual for whom it was prescribed.
14. Patients should be advised that **BAR-HYDROmorphone CR** doses of 12 mg or more are for use only in individuals tolerant to the effect of opioids.
15. Women of childbearing potential who become or are planning to become pregnant should be advised to consult a physician prior to initiating or continuing therapy with **BAR-HYDROmorphone CR**. Women who are breast-feeding or pregnant should not use **BAR-HYDROmorphone CR**.

### **Sexual Function/Reproduction**

Long-term use of opioids may be associated with decreased sex hormone levels and symptoms such as low libido, erectile dysfunction, or infertility (see **ADVERSE REACTIONS, Post-Marketing Experience**).

### **Special Populations**

**Special Risk Groups:** In general, opioids should be given with caution and the initial dose should be reduced for the elderly or debilitated, and those with severe impairment of hepatic, pulmonary or renal function; myxedema or hypothyroidism; adrenocortical insufficiency (i.e. Addison's disease); CNS depression or coma; elevated intracranial pressure; toxic psychosis; prostatic hypertrophy or urethral stricture; gallbladder disease; acute alcoholism; delirium tremens; or kyphoscoliosis.

The administration of opioid analgesics, including HYDROmorphone, may obscure the diagnosis or clinical course in patients with acute abdominal conditions.

Opioid analgesics including HYDROmorphone should also be used with caution in patients about to undergo surgery of the biliary tract, since it may cause spasm of the sphincter of Oddi.

**Pregnant Women: BAR-HYDROmorphone CR** is contraindicated in patients who are pregnant. Animal studies with both morphine and HYDROmorphone, have indicated the possibility of teratogenic effects. In humans, it has not conclusively been established whether HYDROmorphone can cause fetal harm when administered during pregnancy or can affect reproductive capacity, therefore **BAR-HYDROmorphone CR** is contraindicated in patients who are pregnant (see **CONTRAINDICATIONS**).

Prolonged maternal use of opioids during pregnancy can result in withdrawal signs in the neonate. Neonatal opioid withdrawal syndrome, unlike opioid withdrawal syndrome in adults, may be life-threatening (see **WARNINGS AND PRECAUTIONS – Neonatal Opioid Withdrawal Syndrome, ADVERSE REACTIONS, Post-Marketing Experience**).

**Labour, Delivery and Nursing Women: BAR-HYDROmorphone CR** is contraindicated during labour, delivery, pregnancy and in nursing mothers. HYDROmorphone can cross the placental barrier and is also excreted in breast milk. Life threatening respiratory depression may occur in the infant if opioids are administered to the mother. Naloxone, a drug that counters the effects of opioids, should be readily available if **BAR-HYDROmorphone CR** is used in this population. Respiratory depression may occur in the infant if opioids are administered during labour. Therefore, **BAR-HYDROmorphone CR** should not be used during or immediately prior to labour or in nursing mothers.

**Pediatrics (< 18 years of age):** The safety and efficacy of **BAR-HYDROmorphone CR** has not been studied in the pediatric population. Therefore the use of **BAR-HYDROmorphone CR** is not recommended in patients under 18 years of age.

**Geriatrics (> 65 years of age):** In general, dose selection for an elderly patient should be cautious, usually starting at the low end of the dosing range, reflecting the greater frequency of decreased hepatic, renal or cardiac function, concomitant disease or other drug therapy (see **DOSAGE AND ADMINISTRATION**).

**Hepatic Impairment:** After oral administration of HYDROmorphone at a single 4 mg dose (2 mg Dilaudid® tablets), mean exposure to HYDROmorphone ( $C_{max}$  and  $AUC_{\infty}$ ) is increased 4-fold in patients with moderate (Child-Pugh Group B) hepatic impairment compared with subjects with normal hepatic function. Due to increased exposure of HYDROmorphone, patients with moderate hepatic impairment should be started at a lower dose and closely monitored during dose titration. Pharmacokinetics of HYDROmorphone in severe hepatic impairment patients has not been studied. Further increase in  $C_{max}$  and AUC of HYDROmorphone in this group is expected. As such, starting dose should be even more conservative (see **DOSAGE AND ADMINISTRATION**).

**Renal Impairment:** After oral administration of HYDROmorphone at a single 4 mg dose (2 mg Dilaudid® tablets), exposure to HYDROmorphone ( $C_{max}$  and  $AUC_{0-48}$ ) is increased in patients with impaired renal function by 2-fold in moderate ( $CL_{cr} = 40 - 60$  mL/min) and 3-fold in severe ( $CL_{cr} < 30$  mL/min) renal impairment compared with normal subjects ( $CL_{cr} > 80$  mL/min). In addition, in patients with severe renal impairment HYDROmorphone appeared to be more slowly eliminated with longer terminal elimination half-life (40 hr) compared to patients with

normal renal function (15 hr). Patients with moderate renal impairment should be started on a lower dose. Starting doses for patients with severe renal impairment should be even lower. Patients with renal impairment should be closely monitored during dose titration (see **DOSAGE AND ADMINISTRATION**).

## **ADVERSE REACTIONS**

### **Adverse Drug Reaction Overview**

The adverse effects of **BAR-HYDROmorphone CR** (HYDROmorphone hydrochloride controlled release capsules) are similar to those of other opioid analgesics, and represent an extension of pharmacological effects of the drug class. The major hazards of HYDROmorphone include respiratory depression, central nervous system depression and apnea. To a lesser degree, circulatory depression, respiratory arrest, shock and cardiac arrest have occurred.

The most frequently observed adverse effects are asthenia, confusional state, constipation, dizziness, hyperhidrosis, light-headedness, nausea, sedation, somnolence, and vomiting.

**Sedation:** Some degree of sedation is experienced by most patients upon initiation of therapy. This may be at least partly because patients often recuperate from prolonged fatigue after the relief of persistent pain. Most patients develop tolerance to the sedative effects of opioids within three to five days and, if the sedation is not severe, will not require any treatment except reassurance. If excessive sedation persists beyond a few days, the dose of the opioid should be reduced and alternate causes investigated. Some of these are: concurrent CNS depressant medication, hepatic or renal dysfunction, brain metastases, hypercalcemia and respiratory failure. If it is necessary to reduce the dose, it can be carefully increased again after three or four days if it is obvious that the pain is not being well controlled. Dizziness and unsteadiness may be caused by postural hypotension particularly in elderly or debilitated patients and may be alleviated if the patient lies down.

**Nausea and Vomiting:** Nausea is a common side effect on initiation of therapy with opioid analgesics and is thought to occur by activation of the chemoreceptor trigger zone, stimulation of the vestibular apparatus and through delayed gastric emptying. The prevalence of nausea declines following continued treatment with opioid analgesics. If nausea and vomiting become troublesome during prolonged therapy with **BAR-HYDROmorphone CR** for chronic pain, a prescription for an antiemetic medication may be considered. In the cancer patient, investigation of nausea should include such causes as constipation, bowel obstruction, uremia, hypercalcemia, hepatomegaly, tumour invasion of celiac plexus and concurrent use of drugs with emetogenic properties. Persistent nausea which does not respond to dosage reduction may be caused by opioid-induced gastric stasis and may be accompanied by other symptoms including decreased appetite, early satiety, vomiting and abdominal fullness. These symptoms may respond to chronic treatment with gastrointestinal prokinetic agents.

**Constipation:** Practically all patients become constipated while taking opioids on a persistent basis. In some patients, particularly the elderly or bedridden, fecal impaction may result. It is essential to caution the patients in this regard and to institute an appropriate regimen of bowel management at the start of prolonged opioid analgesic therapy. Stool softeners, stimulant laxatives and other appropriate measures should be used as required. As fecal impaction may

present as overflow diarrhea, the presence of constipation should be excluded in patients on opioid therapy prior to initiating treatment for diarrhea.

The following adverse effects occur with opioid analgesics and include those reported in **BAR-HYDROmorphone CR** clinical trials, as well as post-marketing adverse events related to HYDROmorphone. The reactions are categorized by body system and frequency according to the following definitions: 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).

**Immune System Disorders:**

*Not known:* anaphylactic reactions, hypersensitivity reactions (including oropharyngeal swelling)

**Metabolism and Nutrition Disorders:**

*Common:* decreased appetite

**Psychiatric Disorders:**

*Common:* anxiety, confusional state, insomnia, euphoric mood, dysphoria

*Uncommon:* agitation, depression, hallucination, nightmares, mood altered

*Not known:* drug dependence, nervousness, disorientation

**Nervous System Disorders:**

*Very common:* dizziness, somnolence, sedation

*Common:* headache

*Uncommon:* myoclonus, paraesthesia, tremor

*Rare:* lethargy

*Not known:* convulsions, dyskinesia, hyperalgesia, syncope, increased intracranial pressure, nystagmus

**Eye Disorders:**

*Uncommon:* visual impairment

*Not known:* miosis, diplopia

**Cardiac Disorders:**

*Rare:* bradycardia, palpitations, tachycardia

**Vascular Disorders:**

*Uncommon:* hypotension

*Not known:* flushing, hypertension

**Respiratory, Thoracic and Mediastinal Disorders:**

*Uncommon:* dyspnea

*Rare:* respiratory depression

*Not known:* bronchospasm, laryngospasm

**Gastrointestinal Disorders:**

*Very common:* constipation, nausea



*Common:* abdominal pain, dry mouth, vomiting

*Uncommon:* diarrhea, dysgeusia

*Not known:* paralytic ileus

**Hepatobiliary Disorders:**

*Uncommon:* hepatic enzymes increased

*Not known:* biliary colic

**Skin and Subcutaneous Tissue Disorders:**

*Common:* pruritus, hyperhidrosis

*Uncommon:* rash

*Not known:* urticaria

**Musculoskeletal and Connective Tissue Disorders**

*Not known:* muscle rigidity

**Renal and Urinary Disorders:**

*Uncommon:* urinary retention, urinary hesitancy

**Reproductive System and Breast Disorders:**

*Uncommon:* erectile dysfunction

**General Disorders and Administration Site Conditions:**

*Common:* asthenia

*Uncommon:* drug withdrawal syndrome, fatigue, malaise, peripheral edema

*Not known:* drug tolerance, drug withdrawal syndrome neonatal, chills, disorientation, feeling abnormal

**Post-Marketing Experience**

The following adverse reactions have been identified during post-approval use of hydromorphone. Because these reactions are reported voluntarily from a population of uncertain size, it is not always possible to reliably estimate their frequency or establish a causal relationship to drug exposure.

**Serotonin syndrome:** Cases of serotonin syndrome, a potentially life-threatening condition, have been reported during concomitant use of opioids with serotonergic drugs.

**Adrenal insufficiency:** Cases of adrenal insufficiency have been reported with opioid use, more often following greater than one month of use (see **WARNINGS AND PRECAUTIONS, ACTION AND CLINICAL PHARMACOLOGY**).

**Anaphylaxis:** Anaphylactic reaction has been reported with ingredients contained in **BAR-HYDROmorphone CR**.

**Androgen deficiency:** Cases of androgen deficiency have occurred with chronic use of opioids. Chronic use of opioids may influence the hypothalamic-pituitary-gonadal axis, leading to

androgen deficiency that may manifest as low libido, impotence, erectile dysfunction, amenorrhea, or infertility. The causal role of opioids in the clinical syndrome of hypogonadism is unknown because the various medical, physical, lifestyle, and psychological stressors that may influence gonadal hormone levels have not been adequately controlled for in studies conducted to date. Patients presenting with symptoms of androgen deficiency should undergo laboratory evaluation.

There have also been post-marketing reports of Neonatal Opioid Withdrawal Syndrome (NOWS) in patients treated with hydromorphone (see **WARNINGS AND PRECAUTIONS, Neonatal Opioid Withdrawal Syndrome (NOWS)**).

## **DRUG INTERACTIONS**

### **Overview**

**Interactions with Central Nervous System (CNS) Depressants (including benzodiazepines and alcohol):** **BAR-HYDROmorphone CR** (HYDROmorphone hydrochloride controlled release capsules) should be dosed with caution in patients who are currently taking other CNS depressants or other drugs that may cause respiratory depression, hypotension, profound sedations, or may potentially result in coma. Such agents include antidepressants, antihistamines, antipsychotics, anxiolytics, barbiturates, benzodiazepines, centrally acting antiemetics, chloral hydrate, clonidine and related substances, general anaesthetics, some heart medications (e.g. beta-blockers), neuroleptics, other opioid derivatives (analgesic and antitussive) phenothiazines and sedatives or hypnotics. When such combined therapy is contemplated, a substantial reduction in the dose of one or both agents should be considered and patients carefully monitored. Patients should also be warned that these combinations increase central nervous system depression and can make driving vehicles and operating machinery hazardous (see **WARNINGS AND PRECAUTIONS, Psychomotor Impairment**). **BAR-HYDROmorphone CR** should not be consumed with alcohol as it may increase chance of experiencing dangerous side effects.

***In Vitro* Dissolution Studies of Interaction with Alcohol:** Increasing concentrations of alcohol in the dissolution medium resulted in a decrease in the rate of release of HYDROmorphone from **BAR-HYDROmorphone CR** capsules at lower alcohol concentrations (up to 20%) and more rapid release, only at the highest alcohol concentrations (35 - 40%). The clinical significance of these findings is unknown.

### **Drug-Drug Interactions**

**Administration with Mixed Activity Agonist/Antagonist Opioids:** Mixed agonist/antagonist opioid analgesics (i.e., pentazocine, nalbuphine, butorphanol, and buprenorphine) should be administered with caution to a patient who has received or is receiving a course of therapy with a pure opioid agonist analgesic such as HYDROmorphone. In this situation, mixed agonist/antagonist analgesics may reduce the analgesic effect of HYDROmorphone and/or may precipitate withdrawal symptoms in these patients.

**MAO Inhibitors:** MAO inhibitors intensify the effects of opioid drugs which can cause anxiety, confusion and decreased respiration. **BAR-HYDROmorphone CR** is contraindicated in patients

receiving MAO inhibitors or who have used them within the previous 14 days (see **CONTRAINDICATIONS**).

HYDROmorphone may increase the anticoagulant activity of coumarin and other anticoagulants.

**Serotonergic Agents:** Coadministration of HYDROmorphone with a serotonergic agent, such as a selective serotonin re-uptake inhibitor or a serotonin norepinephrine re-uptake inhibitor, may increase the risk of serotonin syndrome, a potentially life-threatening condition (see **WARNINGS AND PRECAUTIONS, Neurologic**).

### **Drug-Herb Interactions**

Interactions with herbal products have not been established.

### **Drug-Laboratory Interactions**

Interactions with laboratory tests have not been established.

### **Drug-Lifestyle Interactions**

The concomitant use of alcohol should be avoided (see **WARNINGS AND PRECAUTIONS, General**).

## **DOSAGE AND ADMINISTRATION**

All doses of opioids carry an inherent risk of fatal or non-fatal adverse events. This risk is increased with higher doses. For the management of chronic non-cancer, non-palliative pain, it is recommended that 18 mg (90 morphine milligram equivalent) of **BAR-HYDROmorphone CR** (HYDROmorphone hydrochloride controlled release capsules) not be exceeded. Each patient should be assessed for their risk prior to prescribing **BAR-HYDROmorphone CR**, as the likelihood of experiencing serious adverse events can depend upon the type of opioid, duration of treatment, level of pain as well as the patient's own level of tolerance. In addition, the level of pain should be assessed routinely to confirm the most appropriate dose and the need for further use of **BAR-HYDROmorphone CR** (see **DOSAGE AND ADMINISTRATION - Adjustment or reduction of Dosage**).

**BAR-HYDROmorphone CR should only be used in patients for whom alternative treatment options (e.g., non-opioid analgesics) are ineffective, or not tolerated, or would be otherwise inadequate to provide appropriate management of pain.**

**BAR-HYDROmorphone CR must be swallowed whole, or opened and the contents sprinkled onto a tablespoonful of warm or cold (4° - 40°C) applesauce or room temperature custard. The entire contents of the tablespoonful of food and HYDROmorphone mixture should be swallowed as soon as possible after sprinkling and should be discarded if not consumed. The food/drug mixture should not be chewed, and the ingestion should be followed by rinsing the mouth with fluid to ensure that the entire contents are swallowed. Taking broken, chewed, dissolved or crushed capsules can lead to the rapid release and absorption of a potentially fatal dose of HYDROmorphone (see **WARNINGS AND PRECAUTIONS**).**

Despite data demonstrating the bioequivalence of **BAR-HYDROmorphone CR** after sprinkling capsule contents on selected soft foods for up to 30 minutes (see **ACTION AND CLINICAL PHARMACOLOGY – Pharmacokinetics**), sprinkled doses should be ingested as soon as possible to avoid errors from the loss of product identification features after removal of beads from the capsule shell. After sprinkling, if unsure of the elapsed time or which food sample contains the mixture, discard all implicated food samples.

Capsule strengths of 18 mg and higher, or a single dose greater than 12 mg, are for opioid tolerant patients only, requiring **HYDROmorphone** equivalent dosages of 36 mg or more per day. A single dose greater than 12 mg, or total daily dose greater than 24 mg, may lead to severe medical consequences including fatal respiratory depression in patients not previously exposed to similar doses of opioids (see **WARNINGS AND PRECAUTIONS** and **DRUG INTERACTIONS**).

**BAR-HYDROmorphone CR** is not indicated for rectal administration.

### **Recommended Dose and Dosage Adjustment**

**Adults:** Individual dosing requirements vary considerably based on each patient's age, weight, severity and cause of pain, and medical and analgesic history. The capsules may be swallowed whole or administered by carefully opening the capsules and sprinkling the contents onto a tablespoonful of warm or cold (4° - 40°C), applesauce or room temperature custard. Applesauce (pH 3.56) is among the most acidic of soft foods and custard (pH 6.95) is among the least acidic. The entire contents of the tablespoon should be swallowed as soon as possible after sprinkling and should be discarded if not consumed. The food/drug mixture must not be chewed and the ingestion should be followed by rinsing the mouth with fluid to ensure that the entire contents are swallowed (see **WARNINGS AND PRECAUTIONS**).

### **Patients Not Receiving Opioids at the Time of Initiation of **BAR-HYDROmorphone CR****

**Treatment:** Patients who are opioid naïve or receiving low, intermittent doses of weak opioid analgesics may be initiated on **BAR-HYDROmorphone CR** 3 mg every 12 hours.

**Patients Currently Receiving Opioids:** Patients currently receiving other oral **HYDROmorphone** formulations may be transferred to **BAR-HYDROmorphone CR** at the same total daily **HYDROmorphone** dosage, equally divided into two 12 hourly **BAR-HYDROmorphone CR** doses.

For patients who are receiving an alternate opioid, the "oral **HYDROmorphone** equivalent" of the analgesic presently being used should be determined. Having determined the total daily dosage of the present analgesic, Error! Reference source not found. can be used to calculate the approximate daily oral **HYDROmorphone** dosage that should provide equivalent analgesia. This total daily oral **HYDROmorphone** dose should then be equally divided into two 12 hourly **BAR-HYDROmorphone CR** doses. Further dose reductions should be considered due to incomplete cross-tolerance between opioids.

**Hepatic Impairment:** Start patients with moderate hepatic impairment on 25% of the **BAR-HYDROmorphone CR** dose that would be prescribed for patients with normal hepatic function. Closely monitor patients with moderate hepatic impairment for respiratory and central nervous system depression during initiation of therapy with **BAR-HYDROmorphone CR** and during dose titration. Use of alternate analgesics is recommended for patients with severe hepatic impairment (see **WARNINGS AND PRECAUTIONS, Special Populations, Hepatic Impairment**).

**Renal Impairment:** Start patients with moderate renal impairment on 50% and patients with severe renal impairment on 25% of the **BAR-HYDROmorphone CR** dose that would be prescribed for patients with normal renal function. Closely monitor patients with renal impairment for respiratory and central nervous system depression during initiation of therapy with **BAR-HYDROmorphone CR** and during dose titration (see **WARNINGS AND PRECAUTIONS, Special Populations, Renal Impairment**).

**Dose Titration:** Dose titration is the key to success with opioid analgesic therapy. **Proper optimization of doses scaled to the relief of the individual's pain should aim at regular administration of the lowest dose of controlled release HYDROmorphone (BAR-HYDROmorphone CR) which will achieve the overall treatment goal of satisfactory pain relief with acceptable side effects.**

Dosage adjustments should be based on the patient's clinical response.

In patients receiving **BAR-HYDROmorphone CR** chronically, the dose should be titrated at intervals of 48 hours to that which provides satisfactory pain relief without unmanageable side effects. **BAR-HYDROmorphone CR** is designed to allow 12 hourly dosing.

**If pain repeatedly occurs at the end of the dosing interval it is generally an indication for a dosage increase rather than more frequent administration of controlled release HYDROmorphone (BAR-HYDROmorphone CR).**

**Adjustment or Reduction of Dosage:** Physical dependence with or without psychological dependence tends to occur with chronic administration of opioids, including **BAR-HYDROmorphone CR**. Withdrawal (abstinence) symptoms may occur following abrupt discontinuation of therapy. These symptoms may include body aches, diarrhea, gooseflesh, loss of appetite, nausea, nervousness or restlessness, runny nose, sneezing, tremors or shivering, stomach cramps, tachycardia, trouble with sleeping, unusual increase in sweating, palpitations, unexplained fever, weakness and yawning.

Following successful relief of severe pain, periodic attempts to reduce the opioid dose should be made. Smaller doses or complete discontinuation may become feasible due to a change in the patient's condition or mental state. Patients on prolonged therapy should be withdrawn gradually from the drug if it is no longer required for pain control. In patients who are appropriately treated with opioid analgesics and who undergo gradual withdrawal for the drug, these symptoms are usually mild (see **WARNINGS AND PRECAUTIONS**). Tapering should be individualized and carried out under medical supervision.

Patient should be informed that reducing and/or discontinuing opioids decreases their tolerance to these drugs. If treatment needs to be re-initiated, the patient must start at the lowest dose and titrate up to avoid overdose.

Opioid analgesics may only be partially effective in relieving dysesthetic pain, postherpetic neuralgia, stabbing pains, activity-related pain and some forms of headache. That is not to say that patients with advanced cancer suffering from some of these forms of pain should not be given an adequate trial of opioid analgesics, but it may be necessary to refer such patients at an early time to other forms of pain therapy.

**Management of Patients Requiring Rescue Medication**

Some patients taking **BAR-HYDRORmorphone CR** according to a fixed time schedule may require immediate-release analgesics as "rescue" medication for pain. Selection of rescue medication should be based on individual patient conditions. **BAR-HYDRORmorphone CR** is a controlled release formulation and therefore is not intended for use as rescue medication.

**Missed Dose**

If the patient forgets to take one or more doses, they should take their next dose at the next scheduled time and in the normal amount.

**Opioid Rotation:** Conversion ratios for opioids are subject to variations in kinetics governed by genetics and other factors. When switching from one opioid to another, consider **reducing the calculated dose by 25-50%** to minimize the risk of overdose. Subsequently, up-titrate the dose, as required, to reach the appropriate maintenance dose.

**Table 1: Opioid Conversion Table<sup>a</sup>**

<b>Opioids</b>	<b>To convert to oral morphine equivalent</b>	<b>To convert from oral morphine multiply by</b>	<b>Daily 90 mg MED<sup>b</sup></b>
Morphine	1	1	90 mg
Codeine	0.15	6.67	600 mg
Hydromorphone	5	0.2	18 mg
Oxycodone	1.5	0.667	60 mg
Tapentadol	0.3-0.4	2.5-3.33	300 mg
Tramadol	0.1-0.2	6	***
Methadone	Morphine dose equivalence is not reliably established		

\*\*\* The maximum recommended daily dose of tramadol is 300 mg – 400 mg depending on the formulation.

a. Adapted from the 2017 Canadian guideline for opioids for chronic non-cancer pain. McMaster University; 2017

b. MED. Morphine Equivalent Dose

### **Disposal**

**BAR-HYDROmorphone CR** should be kept in a safe place, such as under lock and out of the sight and reach of children before, during and after use. **BAR-HYDROmorphone CR** should not be used in front of children, since they may copy these actions.

Unused or expired **BAR-HYDROmorphone CR** should be properly disposed of as soon as it is no longer needed to prevent accidental exposure to others, including children or pets. **BAR-HYDROmorphone CR** should not be shared with others and steps should be taken to protect it from theft or misuse. The patient should speak to their pharmacists about temporary storage options, if required, until the medication can be returned to the pharmacy for safe disposal.

**BAR-HYDROmorphone CR should never be disposed of in household trash.** Disposal via a pharmacy take back program is recommended.

### **OVERDOSAGE**

For management of a suspected drug overdose, contact your regional Poison Control Centre.
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### **Symptoms**

Serious overdose with **BAR-HYDROmorphone CR** (HYDROmorphone hydrochloride) is characterized by respiratory depression (a decrease in respiratory rate and/or tidal volume, Cheyne-Stokes respiration, cyanosis), dizziness, confusion, extreme somnolence progressing to stupor or coma, pneumonia aspiration, skeletal muscle flaccidity, cold and clammy skin, miotic pupils and sometimes bradycardia and hypotension. In severe overdose, apnea, circulatory collapse, cardiac arrest and death may occur.

### **Treatment**

In the treatment of overdose, primary attention should be given to the establishment of adequate respiratory exchange through the provision of a patent airway and institution of assisted or controlled ventilation. It should be borne in mind that for individuals who are physically dependent on opioids and are receiving large doses of these drugs, the administration of the usual dose of opioid antagonist will precipitate an acute withdrawal syndrome. The severity will depend on the degree of physical dependence and the dose of the antagonist administered. Use of an opioid antagonist in such persons should be avoided. If necessary to treat serious respiratory depression in the physically dependent patient, the antagonist should be administered with extreme care and by titration, commencing with 10 to 20% of the usual recommended initial dose.

Respiratory depression which may result from overdose, or unusual sensitivity to HYDROmorphone in a non-opioid-tolerant patient, can be managed with opioid antagonist naloxone. A dose of naloxone (usually 0.4 to 2.0 mg) should be administered intravenously, if possible, simultaneously with respiratory resuscitation. The dose can be repeated in 3 minutes. Naloxone should not be administered in the absence of clinically significant respiratory or cardiovascular depression. Naloxone should be administered cautiously to persons who are known or suspected to be physically dependent on HYDROmorphone. In such cases, an abrupt or complete reversal of opioid effects may precipitate an acute abstinence syndrome.

Since the duration of action of HYDROmorphone, particularly sustained release formulations, may exceed that of the antagonist, the patient should be kept under continued surveillance; repeated doses of the antagonist may be required to maintain adequate respiration. Other supportive measures should be applied when indicated.

Supportive measures, including oxygen and vasopressors, should be employed in the management of circulatory shock and pulmonary edema accompanying overdose, as indicated. Cardiac arrest or arrhythmias may require cardiac massage or defibrillation.

Evacuation of gastric contents may be useful in removing unabsorbed drug, particularly when a controlled release oral formulation has been taken.

## **ACTION AND CLINICAL PHARMACOLOGY**

### **Mechanism of Action**

HYDROmorphone, a semi-synthetic  $\mu$  opioid agonist, is a hydrogenated ketone of morphine and shares the pharmacologic properties typical of opioid analgesics. HYDROmorphone and related opioids produce their major effects on the central nervous system and gastrointestinal tract. These include analgesia, drowsiness, mental clouding, changes in mood, euphoric mood or dysphoria, respiratory depression, cough suppression, decreased gastrointestinal motility, nausea, vomiting, increased cerebrospinal fluid pressure, increased biliary pressure, pinpoint constriction of the pupils, increased parasympathetic activity and transient hyperglycemia.

### **Pharmacodynamics**

Estimates of the relative analgesic potency of parenterally administered HYDROmorphone to morphine in acute pain studies in man range from approximately 7:1 to 11:1.

The relationship between plasma concentration of HYDROmorphone and analgesic effect has not been well established. In patients with chronic pain, HYDROmorphone should be titrated to the dose required to adequately relieve pain without unmanageable side effects.

There is no intrinsic limit to the analgesic effect of HYDROmorphone; like morphine, adequate doses will relieve even the most severe pain. Clinically however, dosage limitations are imposed by the adverse effects, primarily respiratory depression, nausea and vomiting, which can result from high doses.

**Cardiovascular System:** The primary effect of HYDROmorphone on the cardiovascular system is peripheral vasodilation which may be at least partially due to release of histamine. In the supine patient, therapeutic doses of HYDROmorphone have no major effect on blood pressure or cardiac rate and rhythm but orthostatic hypotension may result on standing.

**Central Nervous System:** HYDROmorphone depresses respiration. The respiratory depression is discernible even with doses too small to disturb consciousness and increases progressively as the dose is increased. The primary mechanism of respiration depression involves a reduction in responsiveness of the brainstem respiratory centers to carbon dioxide. In a study in healthy volunteers the relative potency of HYDROmorphone and morphine for suppression of the



ventilatory response to carbon dioxide was 8:1, a value consistent with the relative analgesic potency of the two drugs.

HYDROmorphone causes constriction of the pupil due to excitatory action on the autonomic segment of the nucleus of the oculomotor nerve.

**Endocrine System:** Opioids may influence the hypothalamic-pituitary-adrenal or -gonadal axes. Some changes that can be seen include an increase in serum prolactin, and decreases in plasma cortisol and testosterone. Clinical signs and symptoms may be manifest from these hormonal changes.

**Hepatobiliary System:** Opioids may induce biliary spasm.

**Gastrointestinal Tract and Other Smooth Muscle:** In the gastrointestinal tract, HYDROmorphone usually decreases the secretion of hydrochloric acid in the stomach, diminishes biliary, pancreatic and intestinal secretion, and delays digestion of food in the small intestine, and diminishes or abolishes propulsive peristaltic waves in the colon.

**Immune System:** *In vitro* and animal studies indicate that opioids have a variety of effects on immune functions, depending on the context in which they are used. The clinical significance of these findings is unknown.

#### **Concentration – Efficacy Relationships**

No clear relationship has been demonstrated between plasma concentration of HYDROmorphone and analgesic effect although one study in patients with chronic pain suggests that concentrations less than 4 ng/mL are associated with lower degrees of pain relief.

#### **Concentration – Adverse Reaction Relationship**

It is generally accepted that in patients with chronic pain, opioid analgesics should be titrated to the dose required to adequately relieve pain without unmanageable side effects. In three Canadian studies of HYDROmorphone administered by continuous subcutaneous infusion, the mean maximum daily dose was 310 mg and 578 mg in two of the studies, and the highest dose received by individual patients in the three studies was 3,360 mg, 4,024 mg and 4,320 mg.

In a crossover study involving 45 cancer patients, the efficacy and safety of **BAR-HYDROmorphone CR** (HYDROmorphone hydrochloride controlled release capsules) given 12 hourly was compared with immediate release HYDROmorphone tablets (Dilaudid) given 4 hourly. Assessment of pain, nausea and sedation four times per day for seven days indicated that **BAR-HYDROmorphone CR** provided an equivalent degree of pain control to Dilaudid and was associated with an equivalent incidence of typical opioid side effects.

## **Pharmacokinetics**

**BAR-HYDROmorphone CR** (HYDROmorphone hydrochloride controlled release capsules) administered 12 hourly provides equivalent analgesia to conventional release HYDROmorphone tablets administered every 4 hours in patients with cancer pain. Steady-state pharmacokinetic studies demonstrate that maximum plasma concentration ( $C_{max}$ ) of HYDROmorphone is achieved at a mean of 4.8 hours after administration of **BAR-HYDROmorphone CR**, with maximum and minimum concentrations equivalent to those obtained with 4 hourly administration of the immediate release tablets.

**Absorption:** The rate and extent of absorption of HYDROmorphone from **BAR-HYDROmorphone CR** were studied when sprinkled on one tablespoon (15 mL) of soft foods under the following conditions: warm ( $40^{\circ} \pm 2^{\circ}\text{C}$ ) applesauce (pH 3.56), cold ( $4^{\circ} \pm 1^{\circ}\text{C}$ ) applesauce (pH 3.62), and room temperature ( $23^{\circ} \pm 2^{\circ}\text{C}$ ) custard (pH 6.95). All three studies concluded that bioequivalence was demonstrated when HYDROmorphone was administered as an intact capsule vs. administration of capsule contents sprinkled on these foods in healthy subjects under fasting conditions. For the conditions under study, the HYDROmorphone bioavailability was not affected by the pH of the soft foods or temperatures, with a contact time at 30 minutes.

**Food Effects:** The extent of absorption of HYDROmorphone from **BAR-HYDROmorphone CR** is equivalent to that from conventional tablets (Dilaudid) and is not significantly influenced when administered in the presence of food. In patients with chronic cancer pain receiving doses of **BAR-HYDROmorphone CR** ranging from 6 mg to 216 mg/day there was a linear relationship between area under the plasma concentration-time curve (AUC) and dose.

**Distribution:** The terminal elimination half-life after intravenous administration in humans is approximately 2.5 - 3.0 hours. The pharmacokinetics of HYDROmorphone have been shown to be linear over a range of intravenous doses from 10 - 40  $\mu\text{g}/\text{kg}$ .

**Metabolism:** After oral administration of conventional release HYDROmorphone tablets, the drug is rapidly absorbed and, like morphine, undergoes presystemic elimination (approximately 50%), presumably as a result of metabolism in the liver.

**Excretion:** The principal mode of elimination is by excretion in the urine as HYDROmorphone-3-glucuronide, which, at steady-state is present in plasma at concentrations approximately 26 times those of the parent drug. The pharmacologic activity of this and other HYDROmorphone metabolites in humans is not known.

## **STORAGE AND STABILITY**

**Stability and Storage Recommendations:** Store at room temperature ( $15^{\circ} - 25^{\circ}\text{C}$ ).

## **SPECIAL HANDLING INSTRUCTIONS**

Not applicable.

## **DOSAGE FORMS, COMPOSITION AND PACKAGING**

### **Dosage Forms**

**BAR-HYDROmorphone CR** capsules contain controlled release beads of HYDROmorphone hydrochloride and are available in strengths of 3 (green), 4.5 (blue-violet), 6 (pink), 9 (light blue), 12 (orange), 18 (yellow), 24 (grey) and 30 (red) mg. Each capsule is imprinted with HYDROMORPH CONTIN, the letters PF and the strength.

### **Composition**

#### **Active Ingredient:**

HYDROmorphone Hydrochloride

#### **Non-medical Ingredients (all strengths):**

Colloidal silicon dioxide, dibutyl sebacate, ethyl cellulose, hydroxypropyl methylcellulose and microcrystalline cellulose

**Capsule Shells:** gelatin and titanium dioxide. Additional capsule shell ingredients specific to each strength are as follows:

- 3 mg: D&C Yellow No.10, FD&C Green No.3
- 4.5 mg: FD&C Blue No.1, FD&C Red No.3
- 6 mg: D&C Red No.28, FD&C Blue No.1, FD&C Red No.40
- 9 mg: FD&C Blue No.1
- 12 mg: D&C Red No.28, D&C Yellow No.10, FD&C Blue No.1, FD&C Red No.40
- 18 mg: yellow iron oxide
- 24 mg: black iron oxide
- 30 mg: FD&C Red No.3, red iron oxide, yellow iron oxide

### **Packaging**

**BAR-HYDROmorphone CR** is supplied in opaque plastic bottles of 60 capsules.

## PART II: SCIENTIFIC INFORMATION

### PHARMACEUTICAL INFORMATION

#### Drug Substance

HYDROmorphine is a semi-synthetic congener of morphine, differing structurally from morphine in the substitution of an oxygen for the 6 hydroxyl group and hydrogenation of the 7-8 double bond of the morphine molecule.

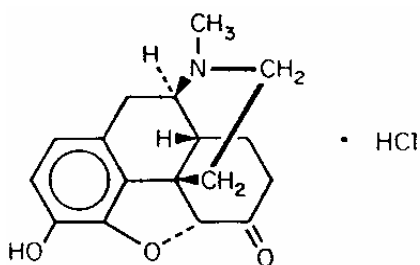
**Proper Name:** HYDROmorphine Hydrochloride

**Chemical Name:** 4,5 $\alpha$ -Epoxy-3-hydroxy-17-methylmorphinan-6-one hydrochloride

**Molecular Formula and Molecular Mass:** C<sub>17</sub>H<sub>19</sub>NO<sub>3</sub>•HCl / 321.8

**Structural Formula:**

**Figure 1. Structural Formula – HYDROmorphine HCl**



#### **Physicochemical Properties:**

HYDROmorphine hydrochloride is a hydrogenated ketone of morphine.

#### **Appearance:**

Fine, white, or practically white, crystalline powder.

#### **Solubility:**

Soluble 1:3 in water and 1:100 in alcohol (90%); practically insoluble in chloroform and ether.

#### **Melting Point:**

Decomposes at 305° to 315°C.

## DETAILED PHARMACOLOGY

### Pharmacodynamics

HYDROmorphine and related  $\mu$ -agonist opioids produce their major effects on the CNS and the bowel. The effects include analgesia, drowsiness, changes in mood, respiratory depression, cough suppression, decreased gastrointestinal motility, nausea, vomiting, and alterations of the endocrine and autonomic nervous systems.

In animal studies the relative potency of single doses of HYDROmorphine and morphine for a variety of pharmacologic effects were: analgesia 4.1:1; LD<sub>50</sub> 6.32:1; convulsant activity 7.92:1; general depression 7.67:1; excitatory effect 3.35:1; emetic activity 2.75:1; respiratory depression 13.63:1. In acute pain studies in man, relative analgesic potency ranged from 6.7:1 to 11.1:1 and in chronic dosing in patients with cancer pain the ratio of morphine to HYDROmorphine doses producing equivalent analgesia was 7.5:1. Clinical experience suggests that the oral potency ratio of HYDROmorphine to morphine ranges from 4:1 to 7.5:1.

### Pharmacokinetics

In three separate studies, the elimination half-life following intravenous administration of HYDROmorphine in man was 2.6, 2.4 and 3.1 hours. Following oral administration, in two of the studies, the elimination half-life was 2.5 - 4.1 hours and absolute bioavailability was 51 - 62%, indicating substantial presystemic elimination.

In a study in which bolus intravenous, 10, 20 or 40  $\mu$ g/kg doses of HYDROmorphine were administered to healthy human subjects, there was a linear relationship between area under the plasma HYDROmorphine concentration-time curve and dose. The plasma concentration-time data was fitted best by a triexponential function, the coefficients of which were also linearly related to dose, indicating dose independent pharmacokinetics.

In urinary excretion studies, 36.8% of a 4 mg dose was recovered over 48 hours as glucuronide conjugate of the parent drug with only 5.6% present as unchanged drug. The metabolites dihydromorphine and dihydroisomorphine were present as glucuronide conjugates in amounts representing 0.1% and 1% of the administered dose, respectively.

### Bioavailability

In a single dose bioavailability study the controlled release characteristics of **BAR-HYDROmorphine CR** were demonstrated with reference to immediate release HYDROmorphine tablets (**Dilaudid**<sup>®</sup>). Following 4 mg doses of both formulations, the time of attainment of maximum plasma concentration ( $T_{max}$ ) was 4.0 hours with **BAR-HYDROmorphine CR** and 1.0 hour with Dilaudid. The maximum plasma concentration was reduced while the extent of absorption of HYDROmorphine with **BAR-HYDROmorphine CR** was equivalent to that of Dilaudid. In the same study, administration of **BAR-HYDROmorphine CR** together with a high protein, high fat meal, did not result in a significant increase in the extent of absorption of HYDROmorphine, compared with the fasting state.

In three separate pharmacokinetic studies, the rate and extent of absorption of HYDROmorphine with **BAR-HYDROmorphine CR** was studied when sprinkled on one tablespoon (15 mL) of soft foods under the following conditions: warm ( $40^{\circ} \pm 2^{\circ}\text{C}$ ) applesauce (pH 3.56), cold

(4° ± 1°C) applesauce (pH 3.62), and room temperature (23° ± 2°C) custard (pH 6.95). All three studies concluded that bioequivalence was demonstrated when HYDROmorphone was administered as an intact capsule vs. administration of capsule contents sprinkled on these foods in healthy subjects under fasting conditions. For the conditions under study, the HYDROmorphone bioavailability was not affected by the pH of the soft foods or temperature, with a contact time at 30 minutes.

In a multiple dose pharmacokinetic study in patients with cancer pain, 12 hourly administration of **BAR-HYDROmorphone CR** demonstrated bioequivalence to immediate release (Dilaudid) tablets administered 4 hourly, with respect to extent of absorption (AUC), and maximum and minimum plasma concentrations ( $C_{max}$ ,  $C_{min}$ ), with a significant delay in mean time of maximum plasma concentration, from 1.5 to 4.8 hours (Table 1).

**Table 1: Multiple Dose Pharmacokinetic Study Comparing Dilaudid with BAR-HYDROmorphone CR**

Pharmacokinetic Parameter (n = 18)	Immediate Release HYDROmorphone (Dilaudid®)	BAR-HYDROmorphone CR	Ratio, % (90% Confidence Interval) <sup>a</sup>
AUC <sub>0-12</sub> ng hr.mL <sup>-1</sup>	119.0	123.1	102 (92-113)
C <sub>max</sub> ng.mL <sup>-1</sup>	19.7	17.8	97 (85-111)
C <sub>min</sub> ng.mL <sup>-1</sup>	5.3	6.0	111 (96-124)
T <sub>max</sub> (hr.)	1.5	4.8	-

a. Derived from ln transformed data.

In the same study, the relationship between dose of **BAR-HYDROmorphone CR** and area under the plasma concentration-time curve of HYDROmorphone was linear over a range of daily doses from 6 mg to 216 mg.

## TOXICOLOGY

The LD<sub>50</sub> of an intravenous (IV) and subcutaneous (SC) dose of HYDROmorphone in the mouse was 104 mg/kg and 84 mg/kg, respectively. The LD<sub>50</sub> of an IV and SC dose of HYDROmorphone HCl in the mouse was 55 mg/kg and 120 mg/kg respectively. In the rat the SC LD<sub>50</sub> was 51 mg/kg.

HYDROmorphone was non-genotoxic in the Ames test and the *in vivo* mouse micronucleus assay, but positive in the mouse lymphoma assay with metabolic activation. Similar findings have been reported with other opioid analgesics like codeine and oxycodone, although codeine was negative in rodent carcinogenicity studies.

### Carcinogenicity

The carcinogenic effects of HYDROmorphone are unknown.

### **Reproductive Toxicity**

No effects have been observed on male or female fertility or sperm parameters.

### **Teratology and Peri/Post-Natal Reproductive Toxicity**

**Teratogenic Effects - Human:** There are no well-controlled studies of HYDROmorphine in pregnant women.

Evidence of a teratogenic effect was reported in the literature in mice and hamsters, but was not in GLP rat and rabbit studies. The anomalies produced resembled those produced by other opioid agonists, including morphine.

No effects on long-term reproductive performance of the F1 generation in rats were observed.

## REFERENCES

1. Brown CR Jr., Forrest WH, Hayden J, James KE. Respiratory effects of hydromorphone in man. *Clin Pharmacol Ther* 1973;14(3):331-7.
2. Bruera E, Brenneis C, Michaud M, Bacovsky R, Chadwick S, Emeno A, MacDonald N. Use of the subcutaneous route for the administration of narcotics in patients with cancer pain. *Cancer* 1988;62(2):407-11.
3. Cone EJ, Phelps BA, Gorodetzky CW. Urinary excretion of hydromorphone and metabolites in humans, rats, dogs, guinea pigs and rabbits. *J Pharm Sci* 1977;66(12):1709-13.
4. Cone EJ, Darwin WD. Simultaneous determination of hydromorphone, hydrocodone and their 6 and 6 $\beta$  hydroxy metabolites in urine using selected ion recording with methane chemical ionization. *Biomed Mass Spectrom* 1978;5(4):291-5.
5. Deutsch EV. Postoperative analgesia with hydromorphone and meperidine: a double blind comparison. *Anesth Analg* 1968;47(6):669-71.
6. Dickson PH, Lind A, Studts P, Nipper HC, Makoid M, Makoid M, et al. The routine analysis of breast milk for drugs of abuse in a clinical toxicology laboratory. *J Forensic Sci* 1994;39(1):207-14.
7. Expert Advisory Committee on the Management of Severe Chronic Pain in Cancer Patients, Health and Welfare Canada. Cancer pain. Ministry of Supply and Services Canada, 1984. Cat. No. H42-2/4-1984.
8. Expert Advisory Committee on the Management of Severe Chronic Pain in Cancer Patients, Health and Welfare Canada. Cancer pain: a monograph on the management of cancer pain. Ministry of Supplies and Services Canada, 1987. Cat. No. H42-2/5-1984E.
9. Ferris FD, Kerr IG, De Angelis C, Sone M, Hume S. Inpatient narcotic infusions for patients with cancer pain. *J Palliat Care* 1990;6(2):51-9.
10. Goldberg RI and Shuman FI. Oral hydromorphone in trauma. *Curr Ther Res Clin Exp* 1965;7(5):284-8.
11. Hagen N, Thirlwell MP, Dhaliwal HS, Babul N, Harsanyi Z, Darke AC. Steady-state pharmacokinetics of hydromorphone and hydromorphone-3-glucuronide in cancer patients after immediate and controlled-release hydromorphone. *J Clin Pharmacol* 1995;35:37-44.
12. Hanks GW, Justins DM. Cancer pain: management. *Lancet* 1992;339(8800):1031-6.
13. Hanna C, Mazuzan JE, Jr., Abajian JA, Jr. An evaluation of dihydromorphinone in treating postoperative pain. *Anesth Analg* 1962;41:755-61.



14. Hays H, Hagen N, Thirlwell M, Dhaliwal H, Babul N, Harsanyi Z, Darke AC. Comparative clinical efficacy and safety of immediate release and controlled release hydromorphone for chronic severe cancer pain. *Cancer* 1994;74(6):1808-16.
15. Hill HF, Coda BA, Tanaka A, Schaffer R. Multiple-dose evaluation of intravenous hydromorphone pharmacokinetics in normal human subjects. *Anesth Analg* 1991;72(3):330-6.
16. Houde RW. Clinical analgesic studies of hydromorphone. In: Foley KM, Inturrisi CE, editors. *Advances in pain research and therapy*. Vol. 8. Opioid analgesics in the management of clinical pain. New York: Raven Press; 1986. p. 129-41.
17. Keeri-Szanto M. Anaesthesia time/dose curves IX: the use of hydromorphone in surgical anaesthesia and postoperative pain relief in comparison to morphine. *Can Anaesth Soc J* 1976;23(6):587-95.
18. Mahler DL, Forrest WH Jr. Relative analgesic potencies of morphine and hydromorphone in postoperative pain. *Anesthesiology* 1975;42(5):602-7.
19. Moulin DE, Johnson NG, Murray-Parsons N, Geoghegan MF, Goodwin VA, Chester MA. Subcutaneous narcotic infusions for cancer pain: treatment outcome and guidelines for use. *CMAJ* 1992;146(6):891-7.
20. Portenoy RK, Coyle N. Controversies in the long-term management of analgesic therapy in patients with advanced cancer. *J Pain Symptom Manage* 1990;5(5):307-19.
21. Portenoy RK. Chronic opioid therapy in non-malignant pain. *J Pain Symptom Manage* 1990;5 (Suppl 1):S46-S62.
22. Portenoy RK, Foley KM, Inturrisi CE. The nature of opioid responsiveness and its implication for neuropathic pain: new hypotheses derived from studies of opioid infusions. *Pain* 1990;43(3):273-86.
23. Portenoy RK. Cancer pain: pathophysiology and syndromes. *Lancet* 1992;339(8800):1026-31.
24. Principles of analgesic use in the treatment of acute pain and cancer pain. 3rd ed. Glenview (IL): American Pain Society;1992.
25. Reidenberg MM, Goodman H, Erle H, Gray G, Lorenzo B, Leipzig RM, Meyer BR, Drayer DE. Hydromorphone levels and pain control in patients with severe chronic pain. *Clin Pharmacol Ther* 1988;49(4):376-82.

26. Ritschel WA, Parab PV, Denson DD, Coyle DE, Gregg RV. Absolute bioavailability of hydromorphone after peroral and rectal administration in humans: Saliva/plasma ratio and clinical effects. *J Clin Pharmacol* 1987;27(9):647-53.
27. Small LF, Eddy NB, Mosettig E, Himmelsbach CK. Studies on drug addiction: with special reference to chemical structure of opium derivatives and allied synthetic substances and their physiological action. *Public Health Report (Suppl No. 138)*. Washington (DC): Government Printing Office (US); 1938:1-143.
28. Steinberg SK, Kornijenko M. The role of hydromorphone in the treatment of cancer pain. *Can Pharm J* 1988;121(3):182-6.
29. Vallner JJ, Stewart JT, Kotzan JA, Kirsten EB, Honigberg IL. Pharmacokinetics and bioavailability of hydromorphone following intravenous and oral administration to human subjects. *J Clin Pharmacol* 1981;21(4):152-6.
30. Wallenstein SL, Houde RW, Portenoy R, Lapin J, Rogers A, Foley KM. Clinical analgesic assay of repeated and single doses of heroin and hydromorphone. *Pain* 1990;41(1):5-13.
31. Weissman DE, Burchman SL, Dinndorf PA, Dahl JL. *Handbook of cancer pain management*. 2nd ed. Madison: Wisconsin Pain Initiative, 1990.
32. Product Monograph - HYDROMORPH CONTIN<sup>®</sup> (HYDROMorphone Hydrochloride Controlled Release Capsules) 3, 4.5, 6, 9, 10, 12, 18, 20, 24 and 30 mg. Purdue Pharma. Control No.: 209995. Date of Revision: February 13, 2018.

**READ THIS FOR SAFE AND EFFECTIVE USE OF YOUR MEDICINE**  
**PATIENT MEDICATION INFORMATION**

**<sup>N</sup>BAR-HYDROmorphine CR**  
**HYDROmorphine hydrochloride controlled release capsules**

Read this carefully before you start taking **BAR-HYDROmorphine CR** and each time you get a refill. This leaflet is a summary and will not tell you everything about this drug. Talk to your healthcare professional about your medical condition and treatment and ask if there is any new information about **BAR-HYDROmorphine CR**.

**Serious Warnings and Precautions**

- **Even if you take BAR-HYDROmorphine CR as prescribed you are at risk for opioid addiction, abuse, and misuse that can lead to overdose and death. To understand your risk of opioid addiction, abuse, and misuse you should speak to your prescriber (e.g., doctor).**
- **Life-threatening breathing problems can happen while taking BAR-HYDROmorphine CR, especially if not taken as directed. Babies are at risk of life-threatening breathing problems if their mothers take opioids while pregnant or nursing.**
- **Never give anyone your BAR-HYDROmorphine CR. They could die from taking it. If a person has not been prescribed BAR-HYDROmorphine CR, taking even one dose can cause a fatal overdose. This is especially true for children.**
- **If you took BAR-HYDROmorphine CR while you were pregnant, whether for short or long periods of time or in small or large doses, your baby can suffer life-threatening withdrawal symptoms after birth. This can occur in the days after birth and for up to 4 weeks after delivery. If your baby has any of the following symptoms:**
  - **has changes in their breathing (such as weak, difficult or fast breathing)**
  - **is unusually difficult to comfort**
  - **has tremors (shakiness)**
  - **has increased stools, sneezing, yawning, vomiting, or fever****seek immediate medical help for your baby**
- **Taking BAR-HYDROmorphine CR with other opioids medicines, benzodiazepines, alcohol, or other central nervous system depressants (including street drugs) can cause severe drowsiness, decreased awareness, breathing problems, coma, and death.**

### **What is BAR-HYDROmorphone CR used for?**

**BAR-HYDROmorphone CR** is used for the long-term management of pain, when:

- the pain is severe enough to require daily, around-the-clock pain medication
- the doctor determines that other treatment options are not able to effectively manage your pain

**BAR-HYDROmorphone CR** is NOT used (“as needed”) to treat pain that you only have once in a while.

### **How does BAR-HYDROmorphone CR work?**

**BAR-HYDROmorphone CR** is an oral controlled release capsule that slowly releases HYDROmorphone over a 12 hour period.

**BAR-HYDROmorphone CR** contains HYDROmorphone which is a pain medication belonging to the class of medicines known as opioids which includes codeine, fentanyl, morphine and oxycodone. It relieves pain by acting on specific nerve cells of the spinal cord and brain.

### **What are the ingredients in BAR-HYDROmorphone CR?**

**Medicinal ingredient:** HYDROmorphone hydrochloride

**Non-medicinal ingredients:** colloidal silicon dioxide, dibutyl sebacate, ethyl cellulose, hydroxypropyl methylcellulose, and microcrystalline cellulose

In addition, the capsule shells contain the following ingredients:

**All capsules:** gelatin, titanium dioxide

3 mg: D&C Yellow No.10, FD&C Green No.3

4.5 mg: FD&C Blue No.1, FD&C Red No.3

6 mg: D&C Red No.28, FD&C Blue No.1, FD&C Red No.40

9 mg: FD&C Blue No.1

12 mg: D&C Red No.28, D&C Yellow No.10, FD&C Blue No.1, FD&C Red No.40

18 mg: yellow iron oxide

24 mg: black iron oxide

30 mg: FD&C Red No.3, red iron oxide, yellow iron oxide

### **BAR-HYDROmorphone CR comes in the following dosage forms:**

Controlled Release Capsules: 3 mg, 4.5 mg, 6 mg, 9 mg, 12 mg, 18 mg, 24 mg and 30 mg

**Do not use BAR-HYDRORomorphone CR if:**

- your doctor did not prescribe it for you
- you are allergic to HYDRORomorphone, other opioids, or any of the other ingredients of **BAR-HYDRORomorphone CR**
- you have mild or short term pain that can be controlled by the occasional use of pain medications, including those available without a prescription
- you have severe asthma, trouble breathing or other lung problems
- you have a condition where the small bowel does not work properly (paralytic ileus) or you have severe pain in your abdomen
- you have gallbladder disease, bile duct disease or problems with your pancreas
- you have a head injury
- if you are at risk for seizures
- you suffer from alcoholism
- you are taking, or have taken within the past 2 weeks, a monoamine oxidase inhibitor medication (e.g., phenelzine sulphate, tranylcypromine sulphate, moclobemide or selegiline)
- you are pregnant or plan to become pregnant, breast-feeding, or in labour
- you are under 18 years of age
- you are going to have, or recently had, a planned surgery

**To help avoid side effects and ensure proper use, talk to your healthcare professional before you take BAR-HYDRORomorphone CR. Talk about any health conditions or problems you may have, including if you:**

- have a history of illicit or prescription drug or alcohol abuse
- have severe kidney, liver, or lung disease
- have heart disease
- have low blood pressure
- have past or current depression
- have problems with your thyroid, adrenal or prostate gland
- suffer from chronic or severe constipation
- have, or had in the past, hallucinations or other severe mental problems
- suffer from migraines

**Other warnings you should know about:**

**Opioid dependence and addiction:** There are important differences between physical dependence and addiction. It is important that you talk to your doctor, if you have questions or concerns about abuse, addiction or physical dependence.

**Pregnancy, nursing, labour and delivery:** Do not use **BAR-HYDRORomorphone CR** while pregnant, nursing, during labour or delivery. Opioids can be transferred to your baby through breast milk, or while still in the womb. **BAR-HYDRORomorphone CR** can then cause life-threatening breathing problems in your unborn baby or nursing infant.

**Driving and using machines:** Before you do tasks which may require special attention, you should wait until you know how you react to **BAR-HYDROmorphone CR**. **BAR-HYDROmorphone CR** can cause:

- drowsiness
- dizziness
- light headedness

This can usually occur after you take your first dose and when your dose is increased.

**Disorder of the adrenal gland:** You may develop a disorder of the adrenal gland called adrenal insufficiency. This means that your adrenal gland is not making enough of certain hormones. You may experience symptoms such as:

- nausea, vomiting
- feeling tired, weak or dizzy
- decreased appetite

You may be more likely to have problems with your adrenal gland if you have been taking opioids for longer than one month. Your doctor may do tests, give you another medication, and slowly take you off **BAR-HYDROmorphone CR**.

**Serotonin Syndrome:** **BAR-HYDROmorphone CR** can cause serotonin syndrome, a rare but potentially life-threatening condition. It can cause serious changes in how your brain, muscles and digestive system work. You may develop serotonin syndrome if you take **BAR-HYDROmorphone CR** with certain anti-depressants or migraine medications.

Serotonin syndrome symptoms include:

- fever, sweating, shivering, diarrhea, nausea, vomiting
- muscle shakes, jerks, twitches or stiffness, overactive reflexes, loss of coordination
- fast heartbeat, changes in blood pressure
- confusion, agitation, restlessness, hallucinations, mood changes, unconsciousness, and coma

**Sexual Function/Reproduction:** Long term use of opioids may lead to a decrease in sex hormone levels. It may also lead to low libido (desire to have sex), erectile dysfunction or being infertile.

**Tell your healthcare professional about all the medicines you take, including any drugs, vitamins, minerals, natural supplements or alternative medicines.**

**The following may interact with BAR-HYDROmorphine CR:**

- alcohol, including prescription and non-prescription medications containing alcohol. Do not drink alcohol while taking **BAR-HYDROmorphine CR**. This can lead to drowsiness, depressed breathing, unusually slow or weak breathing, serious side effects or a fatal overdose
- other sedative drugs which may enhance the drowsiness caused by **BAR-HYDROmorphine CR**
- other opioid analgesics (for pain)
- general anesthetics (used during surgery)
- drugs used to help you sleep or to reduce anxiety
- antidepressants (for depression and mood disorders). Do not take **BAR-HYDROmorphine CR** with monoamine oxidase (MAO) inhibitors or if you have taken MAO inhibitors in the last 14 days before treatment with **BAR-HYDROmorphine CR**
- drugs used to treat serious mental or emotional disorders, such as schizophrenia
- antihistamines (for allergies)
- anti-emetics (for prevention of vomiting)
- drugs used to treat muscle spasms and back pain
- warfarin and other coumarin anticoagulants (for prevention/treatment of blood clots)
- some heart medication (beta blockers)
- St. John's Wort

**How to take BAR-HYDROmorphine CR:**

Take **BAR-HYDROmorphine CR**

- exactly as prescribed
- every 12 hours

**BAR-HYDROmorphine CR** can be swallowed whole or sprinkled on applesauce or custard.

**Swallowed:**

- swallow the capsule whole
- take the capsule with a full glass of water
- do **not** cut, break, chew, dissolve or crush the capsule - this can be dangerous and life threatening

**Sprinkled:**

- measure a tablespoon of warm or cold (4° - 40°C) applesauce or room temperature custard
- open the capsule
- sprinkle contents onto the tablespoon
- ensure the capsule is emptied of all contents
- take the entire tablespoon as soon as possible
- do **not** chew the contents (beads)
- rinse your mouth and swallow the water
- do **not** keep any of the food/medicine mixture for another dose

If you do not remember when you sprinkled the medicine on the applesauce or custard, or which food you sprinkled the medicine on, throw out the food/medicine mixture.

**Do not take a single dose greater than 12 mg of BAR-HYDROmorphone CR every 12 hours unless you are “opioid tolerant”. Your doctor will tell you when you are “opioid tolerant” to a certain dose of BAR-HYDROmorphone CR.**

**BAR-HYDROmorphone CR** is not recommended for rectal administration.

### **Usual Adult Starting Dose:**

Dosage is individualized. Be sure to follow your doctor’s dosing instructions exactly. Do not increase or decrease your dose without consulting your doctor. Taking higher doses can lead to more side effects and greater chance of overdose.

Review your pain regularly with your doctor to determine if you still need **BAR-HYDROmorphone CR**. Be sure to use **BAR-HYDROmorphone CR** only for the condition for which it was prescribed.

Should your pain increase or any other complaint develop as a result of taking **BAR-HYDROmorphone CR**, tell your doctor immediately.

### **Stopping your Medication:**

You should not stop taking **BAR-HYDROmorphone CR** all at once if you have been taking it for more than a few days.

Your doctor will monitor and guide you on how to slowly stop taking **BAR-HYDROmorphone CR**. You should do it slowly to avoid uncomfortable symptoms such as having

- body aches
- diarrhea
- goosebumps
- loss of appetite
- nausea
- feeling nervous or restless
- runny nose
- sneezing
- tremors or shivering
- stomach cramps
- rapid heart rate (tachycardia)
- having trouble with sleeping
- an unusual increase in sweating
- heart palpitations
- an unexplained fever
- weakness
- yawning



By reducing or stopping your opioid treatment, your body will become less used to opioids. If you start treatment again, you will need to start at the lowest dose. You may overdose if you restart at the last dose you took before you slowly stopped taking **BAR-HYDROmorphone CR**.

### **Refilling Prescriptions for BAR-HYDROmorphone CR:**

A new written prescription is required from your doctor each time you need more **BAR-HYDROmorphone CR**. Therefore, it is important that you contact your doctor before your current supply runs out.

Only obtain prescriptions for this medicine from the doctor in charge of your treatment. Do not seek prescriptions from other doctors unless you switch to another doctor for your pain management.

### **Overdose:**

If you think you have taken too much **BAR-HYDROmorphone CR**, contact your healthcare professional, hospital emergency department or regional Poison Control Centre immediately, even if there are no symptoms.

Signs of overdose may include:

- unusually slow or weak breathing
- dizziness
- confusion
- extreme drowsiness

### **Missed Dose:**

It is important that you do not miss any doses. If you miss a dose, take your next dose at your usual time. You should always try to get back on track with your regular dosing schedule (e.g., 8 o'clock in the morning and 8 o'clock in the evening). If you miss several doses in a row, talk to your doctor before restarting your medication.

### **What are possible side effects from using BAR-HYDROmorphone CR?**

These are not all the possible side effects you may feel when taking **BAR-HYDROmorphone CR**. If you experience any side effects not listed here, contact your healthcare professional.

Side effects may include:

- Confusion
- Constipation
- Dizziness
- Drowsiness

- Light-headedness
- Nausea, vomiting, or poor appetite
- Lack of muscle strength
- Sleepiness
- Sweating
- Low sex drive, impotence (erectile dysfunction), infertility
- Itching
- Dry mouth
- Insomnia
- Abdominal pain
- Headache
- Anxiety
- Problems with vision
- Weakness, uncoordinated muscle movement

Talk with your doctor or pharmacist about ways to prevent constipation when you start using **BAR-HYDRORmorphone CR**.

If nausea and vomiting become troublesome during prolonged therapy with **BAR-HYDRORmorphone CR**, talk to your doctor or pharmacist.

<b>Serious side effects and what to do about them</b>				
Symptom / effect		Talk to your healthcare professional		Stop taking drug and get immediate medical help
		Only if severe	In all cases	
<b>Rare</b>	<b>Overdose:</b> hallucinations, confusion, inability to walk normally, slow or weak breathing, extreme sleepiness, sedation, or dizziness, floppy muscles/ low muscle tone, cold and clammy skin			√
	<b>Respiratory Depression:</b> slow, shallow or weak breathing			√
	<b>Allergic Reaction:</b> rash, hives, swelling of the face, lips, tongue or throat, difficulty swallowing or breathing			√
	<b>Bowel Blockage (impaction):</b> abdominal pain, severe constipation, nausea			√
	<b>Withdrawal:</b> nausea, vomiting, diarrhea, anxiety, shivering, cold and clammy skin, body aches, loss of appetite, sweating		√	
	<b>Fast, Slow or Irregular Heartbeat:</b> heart palpitations		√	
	<b>Low Blood Pressure:</b> dizziness, fainting, light-headedness	√		

Serious side effects and what to do about them				
Symptom / effect		Talk to your healthcare professional		Stop taking drug and get immediate
<b>Rare</b>	<b>Serotonin Syndrome:</b> agitation or restlessness, loss of muscle control or muscle twitching, tremor, diarrhea			√

If you have a troublesome symptom or side effect that is not listed here or becomes bad enough to interfere with your daily activities, talk to your healthcare professional.

**Reporting Side Effects**

You can report any suspected side effects associated with the use of health products to Health Canada by:

- Visiting the Web page on Adverse Reaction Reporting (<https://www.canada.ca/en/health-canada/services/drugs-health-products/medeffect-canada/adverse-reaction-reporting.html>) for information on how to report online, by mail or by fax; or
- Calling toll-free at 1-866-234-2345.

*NOTE: Contact your health professional if you need information about how to manage your side effects. The Canada Vigilance Program does not provide medical advice.*

**Storage:**

- **Keep unused or expired BAR-HYDROmorphine CR in a secure place to prevent theft, misuse or accidental exposure.**
- Store at room temperature (15° - 25°C). Keep in a dry place.
- **Keep BAR-HYDROmorphine CR under lock, out of sight and reach of children and pets.**
- **Never take medicine in front of small children as they will want to copy you. Accidental ingestion by a child is dangerous and may result in death. If a child accidentally takes BAR-HYDROmorphine CR, get emergency help right away.**

**Disposal:**

**BAR-HYDROmorphine CR should never be thrown into household trash, where children and pets may find it.** It should be returned to a pharmacy for proper disposal.

**If you want more information about BAR-HYDROmorphine CR:**

- Talk to your healthcare professional

Find the full product monograph that is prepared for healthcare professionals and includes this patient medication information by visiting the Health Canada website (<https://www.canada.ca/en/health-canada/services/drugs-health-products/drug-products/drug-product-database.html>); or by calling 1-800-387-4501.

This leaflet was prepared by Bard Pharmaceuticals (1990) Inc.

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