

## Carbonic Anhydrase Inhibitors (Systemic)/DIAMOX/ACETAZOLAMIDE/METHAZOLAMIDE

Note: For quick reference, the following carbonic anhydrase inhibitors are numbered to match the corresponding brand names.

Another commonly used name for dichlorphenamide is diclofenamide.

### Category

- **Altitude sickness, acute, prophylactic and therapeutic agent** --Acetazolamide
- **Anticonvulsant** --Acetazolamide
- **Antiglaucoma agent, systemic** -- Acetazolamide; Dichlorphenamide; Methazolamide
- **Antiparalytic, familial periodic paralysis** --Acetazolamide
- **Antiurolithic, cystine calculi** --Acetazolamide
- **Antiurolithic, uric acid calculi** --Acetazolamide
- **Diuretic, urinary alkalinizing** -- Acetazolamide

### Description

Carbonic anhydrase inhibitors are used to treat glaucoma. Acetazolamide is also used as an anticonvulsant to control certain seizures in the treatment of epilepsy. It is also sometimes used to prevent or lessen some effects in mountain climbers who climb to high altitudes, and to treat other conditions as determined by your doctor.

These medicines are available only with your doctor's prescription, in the following dosage forms:

#### *Oral*

- Acetazolamide /Dichlorphenam/ Methazolamide

### Before Using This Medicine

In deciding to use a medicine, the risks of taking the medicine must be weighed against the good it will do. This is a decision you and your doctor will make. For carbonic anhydrase inhibitors, the following should be considered:

**Allergies**—Tell your doctor if you have ever had any unusual or allergic reaction to carbonic anhydrase inhibitors, sulfonamides (sulfa drugs), or thiazide diuretics (a type of water pill). Also tell your health care professional if you are allergic to any other substances, such as foods, preservatives, or dyes.

**Pregnancy**—Carbonic anhydrase inhibitors have not been studied in pregnant women. However, studies in animals have shown that carbonic anhydrase inhibitors cause birth defects. Before taking this medicine, make sure your doctor knows if you are pregnant or if you may become pregnant.

**Breast-feeding**—Carbonic anhydrase inhibitors may pass into the breast milk. These medicines are not recommended during breast-feeding, because they may cause unwanted effects in nursing babies. It may be necessary for you to use another medicine or to stop breast-feeding during treatment. Be sure you have discussed this with your doctor.

**Older adults**—Many medicines have not been studied specifically in older people. Therefore, it may not be known whether they work exactly the same way they do in younger adults. Although there is no specific information comparing use of carbonic anhydrase inhibitors in the elderly with use in other age groups, these medicines are not expected to cause different side effects or problems in older people than they do in younger adults.

**Other medicines**—Although certain medicines should not be used together at all, in other cases two different medicines may be used together even if an interaction might occur. In these cases, your doctor may want to change the dose, or other precautions may be necessary. When you are using carbonic anhydrase inhibitors, it is especially important that your health care professional know if you are using any of the following:

- Amphetamines or
- Mecamylamine (e.g., Inversine) or
- Quinidine (e.g., Quinidex)—Use of carbonic anhydrase inhibitors may increase the chance of side effects
  
- Methenamine (e.g., Mandelamine)—Use of carbonic anhydrase inhibitors may decrease the effectiveness of methenamine

**Other medical problems**—The presence of other medical problems may affect the use of carbonic anhydrase inhibitors. Make sure you tell your doctor if you have any other medical problems, especially:

- Diabetes mellitus (sugar diabetes)—Use of carbonic anhydrase inhibitors may increase the patient's blood and urine sugar concentrations
  
- Emphysema or other chronic lung disease—Use of carbonic anhydrase inhibitors may increase the risk of acidosis (shortness of breath, troubled breathing)
  
- Gout or
- Low blood levels of potassium or sodium—Use of carbonic anhydrase inhibitors may make the condition worse

- Kidney disease or stones—Higher blood levels of carbonic anhydrase inhibitors may result, which may increase the chance of side effects; also, these medicines may make the condition worse
- Liver disease—Use of carbonic anhydrase inhibitors may increase the risk of electrolyte imbalance and may make the condition worse
- Underactive adrenal gland (Addison's disease)—Use of carbonic anhydrase inhibitors may increase the risk of electrolyte imbalance

## Proper Use of This Medicine

*Take this medicine only as directed.* Do not take more of it and do not take it more often than your doctor ordered. To do so may increase the chance of side effects without increasing the effectiveness of this medicine.

This medicine may be taken with meals to lessen the chance of stomach upset. However, if stomach upset (nausea or vomiting) continues, check with your doctor.

This medicine may cause an increase in the amount of urine or in your frequency of urination. If you continue to take the medicine every day, these effects should lessen or stop. To keep the increase in urine from affecting your nighttime sleep:

- If you are to take a single dose a day, take it in the morning after breakfast.
- If you are to take more than one dose a day, take the last dose no later than 6 p.m., unless otherwise directed by your doctor.

However, it is best to plan your dose or doses according to a schedule that will least affect your personal activities and sleep. Ask your health care professional to help you plan the best time to take this medicine.

## Dosing—

The doses of carbonic anhydrase inhibitors will be different for different patients. *Follow your doctor's orders or the directions on the label.* The following information includes only the average doses of these medicines. *If your dose is different, do not change it unless your doctor tells you to do so.*

The number of capsules or tablets that you take depends on the strength of the medicine. Also, *the number of doses you take each day, the time allowed between doses, and the length of time you take the medicine depend on the medical problem for which you are taking the carbonic anhydrase inhibitor.*

### *For acetazolamide*

- For *oral* dosage form (extended-release capsules):
  - For glaucoma:
    - Adults—500 milligrams (mg) two times a day, in the morning and evening.
    - Children—Use and dose must be determined by your doctor.

- For altitude sickness:
  - Adults—500 mg one or two times a day.
  - Children—Use and dose must be determined by your doctor.
- For *oral* dosage form (tablets):
  - For glaucoma:
    - Adults—250 mg one to four times a day.
    - Children—Dose is based on body weight and must be determined by your doctor. The usual dose is 10 to 15 mg per kilogram (kg) (4.5 to 6.8 mg per pound) of body weight a day in divided doses.
  - For epilepsy:
    - Adults and children—Dose is based on body weight and must be determined by your doctor. The usual dose is 10 mg per kg (4.5 mg per pound) of body weight a day in divided doses.
  - For altitude sickness:
    - Adults—250 mg two to four times a day.
    - Children—Use and dose must be determined by your doctor.
- For *injection* dosage form:
  - For glaucoma:
    - Adults—500 mg, injected into a muscle or vein, for one dose.
    - Children—Dose is based on body weight and must be determined by your doctor. The usual dose is 5 to 10 mg per kg (2.3 to 4.5 mg per pound) of body weight every six hours, injected into a muscle or vein.

*For dichlorphenamide*

- For *oral* dosage form (tablets):
  - For glaucoma:
    - Adults—25 to 50 milligrams (mg) one to three times a day.
    - Children—Use and dose must be determined by your doctor.

*For methazolamide*

- For *oral* dosage form (tablets):
  - For glaucoma:
    - Adults—50 to 100 milligrams (mg) two or three times a day.
    - Children—Use and dose must be determined by your doctor.

**Missed dose—**

If you miss a dose of this medicine, take it as soon as possible. However, if it is almost time for your next dose, skip the missed dose and go back to your regular dosing schedule. Do not double doses.

**Storage—**

To store this medicine:

- Keep out of the reach of children.
- Store away from heat and direct light.
- Do not store the capsule or tablet form of this medicine in the bathroom, near the kitchen sink, or in other damp places. Heat or moisture may cause the medicine to break down.

## Precautions While Using This Medicine

This medicine may cause some people to feel drowsy, dizzy, lightheaded, or more tired than they are normally. *Make sure you know how you react to this medicine before you drive, use machines, or do anything else that could be dangerous if you are not alert.*

It is important that your doctor check your progress at regular visits. Your doctor may want to do certain tests to see if the medicine is working properly or to see if certain side effects may be occurring without your knowing it.

*This medicine may cause a loss of potassium from your body.* To help prevent this, your doctor may want you to eat or drink foods that have a high potassium content (for example, orange or other citrus fruit juices) or take a potassium supplement. It is very important to follow these directions. Also, it is important not to change your diet on your own. This is more important if you are already on a special diet (as for diabetes) or if you are taking a potassium supplement. Extra potassium may not be necessary and, in some cases, too much potassium could be harmful.

For *diabetic patients*:

- This medicine may raise blood and urine sugar levels. While you are using this medicine, be especially careful in testing for sugar in your blood or urine. If you have any questions about this, check with your doctor.

Your doctor may want you to increase the amount of fluids you drink while you are taking this medicine. This is to prevent kidney stones. However, do not increase the amount of fluids you drink without first checking with your doctor.

For patients taking *acetazolamide as an anticonvulsant* :

- *If you have been taking acetazolamide regularly for several weeks or more, do not suddenly stop taking it.* Your doctor may want you to reduce gradually the amount you are taking before stopping completely.

## Side Effects of This Medicine

Along with its needed effects, a medicine may cause some unwanted effects. Although not all of these side effects may occur, if they do occur they may need medical attention.

*Check with your doctor immediately* if either of the following side effects occurs:

- *Rare*
  - Shortness of breath or trouble in breathing

Also, check with your doctor as soon as possible if any of the following side effects occur:

- *More common*
  - Unusual tiredness or weakness

- *Less common*
- Blood in urine; difficult urination ; mental depression; pain in lower back; pain or burning while urinating; sudden decrease in amount of urine
- *Rare*
  - Bloody or black, tarry stools; clumsiness or unsteadiness; confusion; convulsions (seizures); darkening of urine; fever; hives, itching of skin, skin rash, or sores; muscle weakness (severe); pale stools; ringing or buzzing in the ears; sore throat; trembling ; unusual bruising or bleeding; yellow eyes or skin
- *Symptoms of too much potassium loss*
  - Dryness of mouth; increased thirst; irregular heartbeats; mood or mental changes; muscle cramps or pain; nausea or vomiting; unusual tiredness or weakness ; weak pulse

Also, check with your doctor if you have any changes in your vision (especially problems with seeing faraway objects) when you first begin taking this medicine.

Other side effects may occur that usually do not need medical attention. These side effects may go away during treatment as your body adjusts to the medicine. However, check with your doctor if any of the following side effects continue or are bothersome:

- *More common*
  - Diarrhea; general feeling of discomfort or illness; increase in frequency of urination or amount of urine (rare with methazolamide); loss of appetite; metallic taste in mouth; nausea or vomiting; numbness, tingling, or burning in hands, fingers, feet, toes, mouth, lips, tongue, or anus; weight loss
- *Less common or rare*
  - Constipation; dizziness or lightheadedness ; drowsiness; feeling of choking or lump in the throat; headache; increased sensitivity of eyes to sunlight; loss of taste and smell; nervousness or irritability