Daunorubicin + cytarabine

Daunorubicin + cytarabine is a combination of medicines used to treat some people with acute myeloid leukaemia (AML).

Summary

- Daunorubicin + cytarabine is a combination of chemotherapy medicines used to treat some people with acute myeloid leukaemia (AML).
- You have daunorubicin through a drip into a vein. You have cytarabine as an injection or through a drip.
- You have treatment in 28-day cycles.
- You have regular blood tests to check how well the treatment is working and how your body is coping with it.
- You may get some side effects while you are having daunorubicin + cytarabine. Some people have very few side effects, whereas other people experience more serious side effects.
- Some side effects can be serious if not treated promptly. Contact your haematology team straight away if:
    - You have a high temperature (38°C or higher)
    - You have a sore or itchy throat and eyes, sneezing, blocked or runny nose, cough or shortness of breath
    - You have a headache or pain around your eyes, nose and forehead
    - You have burning or stinging when you pee, or you are peeing more than usual
    - You have painful, hot, red swollen patches or streaks of skin, blisters or peeling skin (this may look different on black or brown skin)
    - You have coldsores, mouth ulcers or sore mouth
    - You have indigestion or pain when you swallow
    - You are feeling sick or being sick
    - You have diarrhoea or weight loss
    - You have pain where you had the injection
    - You get unexpected bruising or bleeding, like nosebleeds, bleeding gums, blood spots or rashes due to a low platelet count

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- You are feeling tired, dizzy or short of breath due to a low red blood cell count (anaemia)

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About daunorubicin + cytarabine

Daunorubicin is a chemotherapy medicine. It blocks an enzyme that cells need to divide and grow. Blocking this enzyme can help stop cancer cells from growing and dividing.

Daunorubicin does not have a brand name.

Cytarabine is a chemotherapy medicine that stops your cancer cells from making and repairing DNA. This can stop cancer cells from growing and dividing.

Cytarabine does not have a brand name. You might hear some people call it Ara-C.

Your haematology team might recommend daunorubicin + cytarabine for you if:

- You have been newly diagnosed with AML **AND**
- You are able to have high intensity treatment

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Before having this treatment

Before you start treatment, your haematology team will carry out the following tests:

- Blood tests to measure your blood counts
- Blood tests to check your liver and kidney function
- Bone marrow tests
- A heart tracing (ECG) and heart scan (echocardiogram) to check how well your heart is working

Things to tell your haematology team

Before starting treatment, you should let your haematology team know if you:

- Have any problems with your liver or kidneys
- Have recently had chemotherapy or radiotherapy or are due to have radiotherapy

- Are due to have any vaccines
- Have or ever had gout
- Are or think you may be pregnant
- Are taking any other medicines, or herbal supplements, in particular:
    - Medicines that can affect your heart, liver or bone marrow
    - Medicines that can affect your immune system
    - Methotrexate, a medicine used to treat some cancers
    - Gentamicin, a type of antibiotic
    - 5-fluorocytosine, a medicine used to treat fungal infections

> **Daunorubicin + cytarabine may affect your fertility. If you think you may want to have children in the future, ask your haematology team for advice on sperm or egg storage before starting treatment.**

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Having this treatment

Daunorubicin + cytarabine is an intensive treatment. You usually need to stay in hospital while you have treatment and until your blood counts recover. Sometimes, you may be able to have treatment as an outpatient for your second cycle. Your medical team will let you know what they recommend for you.

You usually have treatment in 28-day cycles. Most people have a course of daunorubicin + cytarabine over 5 to 10 days, with no treatment for the rest of the cycle.

Your haematology team will let you know what dosing schedule you are on, how often you will have treatment, and if you need to stay in hospital.

Having daunorubicin

You have daunorubicin through a drip into a vein (or a central line, if you have one). Each dose takes about 30 minutes. You usually have two or three doses, spread over 3 to 5 days.

Having cytarabine

You have cytarabine as an injection or through a drip into a vein (or a central line, if you have one).

- As an injection you usually have it twice a day for 5 to 10 days. Each injection usually takes a few minutes.
- As a drip into a vein, you might have it over a few hours a day or as a continuous drip, for 7 to 10 days.

Your haematology team will also give you treatment or suggest things to help prevent and manage side effects. This may include:

- Medicines before you have chemotherapy to help prevent you feeling sick or being sick
- Medicines to reduce your uric acid levels to prevent gout
- Medicines to help prevent side effects caused by waste products released by dying cancer cells
- Staying hydrated, by drinking water (and possibly via a drip) to help prevent gout
- Medicines to prevent infections
- Medicines to help reduce the amount of stomach acid made by the glands in the lining of your stomach (tummy)
- Mouthwashes

Dose

Your haematology team will work out the best dose of daunorubicin + cytarabine for you based on your height, weight and how well you respond to treatment. They will tell you what dose they recommend for you.

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Precautions

There are some precautions to be aware of when you are having daunorubicin + cytarabine.

- Daunorubicin + cytarabine may make you feel confused, or you may have fits (seizures) or visual disturbances. Take care if you are driving or using tools or machinery.

- Daunorubicin + cytarabine can affect your heart. If you have a history of heart problems, have any side effects during or after treatment that affect your heart, tell your haematology team.
- Daunorubicin + cytarabine treatment can make it difficult for your body to fight off infections. If you have an infection or feel unwell before or during treatment, tell your haematology team so they can treat the infection.
- Daunorubicin + cytarabine could cause secondary cancers or leukaemias, usually a few years after treatment. If you have any concerning symptoms, tell your doctor straight away. Make sure you go to any screening tests you're offered.
- Daunorubicin + cytarabine can cause hair loss. This can include hair on your head, facial hair, body hair and pubic hair. It is usually reversible and starts to grow back 2 to 3 months after finishing treatment.
- High doses of daunorubicin + cytarabine can cause nerve damage. If you have pain, numbness, weakness, tingling or loss of balance, tell your haematology team.
- High doses of daunorubicin + cytarabine can cause lung damage. If you have shortness of breath, rapid breathing or bluish skin (this may look different on black or brown skin) tell your haematology team.

Posterior reversible encephalopathy syndrome

Rarely, daunorubicin + cytarabine can cause swelling of parts of your brain, known as posterior reversible encephalopathy syndrome (PRES). This can cause symptoms like fits (seizures), a lack of energy, confusion, vision loss as well as other problems with your eyes and nerves. You may also have high blood pressure.

If you experience any of these symptoms, it is important to tell your haematology team. They will need to do a brain scan, known as an MRI, to confirm if you have PRES. If you do, they may stop treatment with daunorubicin + cytarabine and give you medication to control your blood pressure. They will monitor you closely for any signs of PRES so they can treat it quickly if it happens.

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Pregnancy, breastfeeding and fertility

Daunorubicin + cytarabine may harm unborn babies.

- If you could get pregnant, it is important to use effective contraception. You need to do this while you are having daunorubicin + cytarabine and for 6 months after you stop.
- If you could make someone pregnant, it is important to use effective contraception. You need to do this while you are having daunorubicin + cytarabine and for 6 months after you stop.
- If you think you might be pregnant, tell your haematology team as soon as possible. They may recommend stopping daunorubicin + cytarabine for a while. They could also recommend switching to a different treatment.
- If you are planning to get pregnant or make someone pregnant, tell your haematology team. They can discuss your treatment options with you.

Breastfeeding

Scientists are not sure if daunorubicin + cytarabine passes into breast milk. If it does, it could be a risk for breastfed babies and children. You should not breastfeed when having daunorubicin + cytarabine.

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Monitoring

During your treatment with daunorubicin + cytarabine you will have blood tests every day.

You will also have bone marrow tests, and you may have heart tracings and heart scans. Your haematology team will let you know what tests you need and how often.

Your haematology team will use the results of these tests to:

- Check how well daunorubicin + cytarabine is working for you
- Make sure your blood counts have not dropped too low
- Check how well your heart is working
- Check how well your liver and kidneys are working

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How long to have this treatment

The number of cycles you have depends on how you respond to treatment and how well your body is coping with it. You usually have one or two cycles of treatment.

> **Do not stop having daunorubicin + cytarabine without talking to your haematology team.**

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Side effects

Like all medicines, daunorubicin + cytarabine can cause side effects. Some of these may be serious. Side effects are different for everyone, and we cannot predict what side effects you may or may not get.

> **Tell your haematology team about any side effects you have. They may be able to suggest things you can do or give you medicines to help.**

Side effects you may get include:

- Infections. Signs of infection include:
    - A high temperature (38°C or higher)
    - Sore throat, sneezing, blocked or runny nose or cough
    - Itchy nose, throat and eyes
    - Headache or pain around your eyes, nose and forehead
    - Shortness of breath
    - Burning or stinging when you pee, or peeing more than usual
    - Painful, hot, red swollen area of skin, blisters or peeling of skin (this may look different on black or brown skin)
- Fever

- Coldsores, mouth ulcers or sore mouth
- Indigestion or pain when you swallow
- Feeling sick or being sick
- Diarrhoea
- Weight loss
- Painful, red or swollen streaks on your skin (this may look different on black or brown skin)
- Pain where you have the injection
- Hair loss
- Unexpected bruising or bleeding, like nosebleeds, bleeding gums, blood spots or rashes due to a low platelet count
- Feeling tired, dizzy or short of breath due to a low red blood cell count (anaemia)
- Changes in your liver function, found on blood tests

This is not a full list of side effects you might get. Your haematology team can give you more information on what to expect from your treatment.

Hair loss

Hair loss is usually temporary. It happens gradually. Some people prefer to shave their hair or cut it short. This can give you a feeling of control and reduce the emotional impact of it falling out. You could also cover your hair loss, if you choose to. There are lots of options like hats, headscarves, wraps, turbans or wigs.

Cancer Hair Care UK has more information on hair loss, including how to care for Afro-textured hair during chemotherapy.

Cytarabine syndrome

This is a type of allergic reaction that can occur, usually 6 to 12 hours after you have had a cytarabine injection. You may get symptoms like:

- Fever
- Muscle aches and pain
- Bone pain
- Chest pain
- Reddish skin covered in bumps (this may look different on black and brown skin)
- Red and sore eyes
- Feeling sick
- Feeling generally unwell

If you experience these symptoms, tell your haematology team. They may give you treatment, such as steroids, to help.

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What to do if you get side effects

Tell your haematology team if you get any side effects. They may be able to suggest things to help. This could include:

- Medicines like antibiotics, antifungals or antivirals to treat and prevent infections
- Medicine to prevent or treat gout or problems due to chemicals released by dying cancer cells
- Creams or ointments to help with itchy or dry skin
- Medicines to reduce your stomach acid levels
- Blood or platelet transfusions if you have low levels of blood cells
- Mouthwashes, rinses and gels to help with sore mouth
- Eye drops to help with irritated, itchy or dry eyes
- Medicines to prevent and treat sickness and diarrhoea
- A drip if you're not getting enough fluid

You may need to stay in hospital to manage some of these side effects.

Blood Cancer UK and Macmillan have more information on coping with side effects and treatment.

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If this treatment does not work

If daunorubicin + cytarabine are not working well, there are a number of different options. Your haematology team will explain what they recommend for you.

If your AML does not respond to treatment, this is known as refractory AML. We have more information about relapsed and refractory AML.

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Sources we used to develop this information

Battipaglia G, Avilia S, Morelli E, Caranci F, Perna F, Camera A. Posterior reversible encephalopathy syndrome (PRES) during induction chemotherapy for acute myeloblastic leukemia (AML). Annals of hematology. 2012 Aug;91:1327-8.

Guy's and St Thomas' NHS Foundation Trust. Preparing and giving yourself cytarabine injections [Internet]. 2023. Available from https://www.guysandstthomas.nhs.uk/health-information/injecting-cytarabine-yourself/preparing-and-giving-yourself-cytarabine [Accessed Sep 2024].

Hospira UK. Cytarabine Injection Solution 100 mg/ml – Patient Information Leaflet [Internet]. 2024. Available from https://www.medicines.org.uk/emc/product/1570/pil [Accessed Sep 2024].

Hospira UK. Cytarabine Injection Solution 100 mg/ml – Summary of Product Characteristics [Internet]. 2024. Available from https://www.medicines.org.uk/emc/product/1570/smpc [Accessed Sep 2024].

Hospira UK. Cytarabine Injection Solution 20 mg/ml – Patient Information Leaflet [Internet]. 2024. Available from https://www.medicines.org.uk/emc/product/1571/pil [Accessed Sep 2024]. Hospira UK. Cytarabine Injection Solution 20 mg/ml – Summary of Product Characteristics [Internet]. 2024. Available from https://www.medicines.org.uk/emc/product/1571/smpc [Accessed Sep 2024].

RM Partners, South East London Cancer Alliance and NHS North Central and East Cancer Alliance. Pan-London Haemato-Oncology Clinical Guidelines – Acute Leukaemias and Myeloid Neoplasms Part 2: Acute Myeloid Leukaemia [Internet]. 2020. Available from https://rmpartners.nhs.uk/wp-content/uploads/2020/01/Pan-London-AML-Guidelines-Jan-2020.pdf [Accessed Sep 2024].

Shade L, Richardson D, Taylor E, Williams R. Chemotherapy protocol Acute Myeloid Leukaemia – DA (3+10) Cytarabine-Daunorubicin In-Patient Regimen [Internet]. 2017. Available from https://www.uhs.nhs.uk/Media/UHS-website-2019/Docs/Chemotherapy-SOPs1/AML/DA-3-10.pdf [Accessed Sep 2024].

Silzle T, Glaser-Gallion N, Hitz F. Posterior reversible encephalopathy syndrome during induction chemotherapy for acute myeloid leukaemia. European Journal of Haematology. 2014 Jan 1;92(1)

University Hospital Southampton NHS Foundation Trust. Chemotherapy Protocol Acute Myeloid Leukaemia DA (3 + 10) – Cytarabine-daunorubicin In patient regimen. https://

www.uhs.nhs.uk/Media/UHS-website-2019/Docs/Chemotherapy-SOPs1/AML/DA-3-10.pdf [Accessed Sep 2024].

Wiernik PH, Banks PL, Case DJ, Arlin ZA, Periman PO, Todd MB, Ritch PS, Enck RE, Weitberg AB. Cytarabine plus idarubicin or daunorubicin as induction and consolidation therapy for previously untreated adult patients with acute myeloid leukaemia.

Zentiva. Daunorubicin 20 mg Powder for IV Injection – Patient Information Leaflet [Internet]. 2023. Available from https://www.medicines.org.uk/emc/product/4004/pil [Accessed Sep 2024].

Zentiva. Daunorubicin 20 mg Powder for IV Injection – Summary of Product Characteristics [Internet]. 2020. Available from https://www.medicines.org.uk/emc/product/4004/smpc [Accessed Sep 2024].

Need support?

You are not alone. We're here for you whether you have a diagnosis yourself or know someone who has. If you'd like advice, support, or a listening ear, call our freephone helpline on 08088 010 444 or send a WhatsApp message to 07500 068 065.

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