



## REVIEW ARTICLE

**CISPLATIN – A CHOICE OF DRUG FOR METASTATIC NON-SEMINOMATOUS GERM CELL CARCINOMA**Amit Kumar<sup>1\*</sup>, Girendra Gautam<sup>2</sup>, Umesh Dakhad<sup>3</sup>, Ashish Kumar Mishra<sup>4\*</sup><sup>1</sup> M.Pharm. Research Scholar, Bhagwant Institute of Pharmacy, M. Nagar, (U.P), India<sup>2</sup> Professor, Bhagwant Institute of Pharmacy, M. Nagar, (U.P) India<sup>3</sup> Associate Professor, Bhagwant Institute of Pharmacy, M. Nagar, (U.P) India<sup>4</sup> M.Pharm. Research Scholar, Bhagwant Institute of Pharmacy, M. Nagar, (U.P), India

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**ABSTRACT**

Cisplatin is a type of Medical Treatment Called Chemotherapy. The Purpose of Chemotherapy to Kill Cancer Cell or Prevent the growth. Cancer starts when the cells of an organ or tissue in the body become abnormal. They grow and multiply out of control. Normal cells have a life cycle. They reproduce themselves throughout the body to replace worn out tissue, to heal wounds and to maintain healthy organs. When something happens and cells grow out of control they usually form a mass, called a tumour.

**Key words:** Cisplatin, Neoplastic drug, Germ cell tumor

**INTRODUCTION:****What is Neoplasm?**

Cancer starts when the cells of an organ or tissue in the body become abnormal. They grow and multiply out of control. Normal cells have a life cycle. They reproduce themselves throughout the body to replace worn out tissue, to heal wounds and to maintain healthy organs. When something happens and cells grow out of control they usually form a mass, called a tumour.

Some tumours grow only at the site where they begin (locally). These are called benign tumours. Other tumours grow locally but they might also invade and destroy the normal tissue around them or they might spread to distant parts of the body. These tumours are called malignant tumours or cancers.

Sometimes malignant cells break loose from the original (primary) tumour, get carried to other parts of the body and start growing in the new site as an independent secondary cancer. A tumour that has spread in this way has 'metastasized' and the secondary tumour (or tumours) is called a metastasis (or metastases).

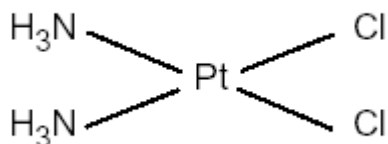
**Germ cell tumor:****A Germ cell tumor (GCT):**

is a neoplasm derived from germ cells. Germ cell tumors can be cancerous or non-cancerous tumors. Germ cells normally occur inside the gonads (ovary and testis). Germ cell tumors that originate outside the gonads may be birth defects resulting from errors during development of the embryo.

**Description:**

Cisplatin Injection (cisplatin injection (cisplatin (cisplatin injection) injection) ) is a sterile aqueous solution, available in 50, 100 and 200 ml multiple dose vials, each mL containing 1 mg of cisplatin (cisplatin injection) and 9 mg sodium chloride in water for injection. HCl and/or sodium hydroxide added to adjust pH to 3.5 to 4.5.

Cisplatin (cisplatin injection) (cis-diamminedi chloro-platinum) is a heavy metal complex containing a central atom of platinum surrounded by two chloride atoms and two ammonia molecules in the cis position. It is a white powder with the molecular formula  $PtCl_2H_6N_2$ , and a molecular weight of 300.05. It is soluble in water or saline at 1 mg/mL and in dimethylformamide at 24 mg/mL. It has a melting point of 207°C.



**Pharmacology:**

Cisplatin is Platinum –Containing antineoplastic agent .Although its mechanism of action has not been conclusively determined.it is thought to act similarly to the bifunctionalalkyting agent .i.e.,by possible cross – linking and interference with the function of DNA and inhibit the cell growth.

**3-Materials and Methodology:**

Cisplatin Clinical dose 50 to 100mg/m2 Single dose

**(Preparation for intravenous administration):**

Cisplatin powder should be dissolved in water to give a final concentration of 1mg/ml. Reconstitute as recommended results in a clear, colorless solution.

**Method:**

- 1-Aseptically reconstitute each vial by injection 50ml of Water for injection USP
- 2-Shake the vials over 5 minute the powder become should be clear less
- 3-Remove the 50ml sodium chloride injection USP to maintain the volume
- 4-Administration –Cisplatin injection may be added to 1litre of normal saline and infused over the desired time period
- 5-Discard the solution if content is not clear or if particulate matter or discoloration is observed.

**Handling of Cisplatin:**

- 1-Wearing of 3M mask
- 2-Disposable cap, apron, goggles
- 3-Mask
- 4-Gloves

**Contraindications:**

Cisplatin is contra-indicated in patients who have previously experienced allergic reactions to cisplatin or other platinum –containing compounds ,and in the presence of severe renal impairment and generalized infections.

**Side effects of Cisplatin:**

- 1- Vomiting
- 2- Low red blood cell count
- 3- pyrexia
- 4- HepatobiliaryDisoder
- 5- Skin necrosis
- 6- Cardiac Disoder
- 7- Heart and blood vessel effect
- 8- Eye disorder

- 9- Renal and Urinary Disoder
- 10- Reproductive System and Breast Disorders
- 11- Gastrointestinal Disoder
- 12- Labyrinth Disoder
- 13- Immune System Disoder

**Caution:**

over dose with cisplatin may result in an enhancement of its expected toxic effects (kidney failure)

**Dosage and administration:**

Cisplatin administration dose 15to 20m2/day

**Storage condition:**

Normal room temp

**Stability:**

Reconstituted solution stable up to 24HRS at room tempters

**Discussion:**

Cisplatin may increase the risk that you will develop other cancers. Talk to your doctor about the risks of taking this medication. Cisplatin may cause other side effects. Call your doctor if you have any unusual problems while taking this medication. Cisplatin may cause serious kidney problems. Kidney problems may occur more often in older people. Your doctor will order laboratory tests before and during your treatment to see if your kidneys are affected by this medication. Tell your doctor if you have or have ever had kidney disease. Tell your doctor and pharmacist if you are taking aminoglycoside antibiotics such as amikacin (Amikin), gentamicin (Garamycin), or tobramycin (Tobi, Nebcin). If you experience any of the following symptoms, call your doctor immediately: decreased urination; swelling of the face, arms, hands, feet, ankles, or lower legs; or unusual tiredness or weakness.

Cisplatin may cause serious hearing problems, especially in children. Hearing loss may be permanent in some cases. Your doctor will order tests to monitor your hearing before and during your treatment. Tell your doctor and pharmacist if you have ever had radiation therapy to your head. Tell your doctor and pharmacist if you are taking aminoglycoside antibiotics such as amikacin (Amikin), gentamicin (Garamycin), or tobramycin (Tobi, Nebcin). If you experience any of the following symptoms, call your doctor immediately: hearing loss, ringing in the ears, or dizziness.

Cisplatin may cause severe allergic reactions, especially if you have received more than one dose of cisplatin injection. If you experience an allergic reaction to cisplatin injection, it may begin within a few minutes after your infusion starts, and you may experience the following symptoms: hives; skin rash; itching; reddening of the skin; difficulty breathing or swallowing; swelling of the face, throat, tongue, lips; dizziness; faintness; or fast

heartbeat. Tell your doctor immediately if you experience any of these symptoms.

Keep all appointments with your doctor and the laboratory. Your doctor will order certain tests before, during, and after your treatment to check your body's response to cisplatin. Your doctor may need to stop or delay your treatment if you experience certain side effects.

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