**Lay Language for Drug Risks**

| Blood / Bleeding | |
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| Anemia | Low number of red blood cells, can causes tiredness and shortness of breath. May require a blood transfusion. |
| Thrombocytopenia | Low number of platelets, which may cause bleeding and bruising. May require a blood transfusion. Bleeding may be serious or life threatening. |
| Leukopenia | Condition in which the number of white blood cells circulating in the blood is abnormally low. |
| Neutropenia | Condition in which the number of white bloods cells called neutrophils is abnormally low. This increases the risk of infection, which may be serious or life threatening. |
| Elevated PTT, INR | Tests that measure how long it takes the blood to clot. If these tests are elevated, it means that your blood isn't clotting normally and you have an increased risk of bleeding or bruising. This could be serious and life threatening and may require hospitalization and a blood transfusion. |
| Blood clots | One risk of chemotherapy is to have blood clots form that can lead to swelling in the arms and legs. These clots can travel to the lungs causing shortness of breath or to the brain causing a stroke. This may be serious or life threatening. |
| Pulmonary embolism | A blood clot that causes a sudden blockage in a lung artery, usually due to a blood clot that traveled to the lung from the leg. Pulmonary embolism is a serious condition that can cause:<br>• Permanent damage to part of your lung from lack of blood flow to lung tissue<br>• Low oxygen levels in your blood<br>• Damage to other organs in your body from not getting enough oxygen.<br>If a clot is large, or if there are many clots, pulmonary embolism can cause death. |
| Epistaxis | Bloody nose |
| Hemoptysis | Vomiting blood |
| DVT (deep venous thrombosis) | Blood clot formed in the veins of the leg |
| Transient Ischemic Attack (TIA) | A brief episode of decreased oxygen to the brain causing blurred vision, dizziness, faintness, and numbness. A TIA is like a mini-stroke. |
| Angina | Chest pain due to decreased oxygen getting to the heart. |
| Pancytopenia | Abnormal decrease in the levels of all type of blood cells |
| Aplastic anemia | A disorder caused by decreased production of red blood cells |
| Bone marrow suppression | -see template language |
| Low white cell count or weakening of the immune system | You have an increased risk of infection. You should call your doctor immediately if you have a fever or other signs of infection. |
| Hyperuricemia | Excess amount of uric acid in the blood, (gout).which can cause pain in the joints. |
| Disseminated Intravascular Coagulation | DIC – A condition that is associated with uncontrolled clotting and bleeding in the body that can cause serious bleeding and organ damage. This can be serious and life threatening. |
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| Raynaud's Syndrome | An autoimmune disorder causing blood vessels to spasm when exposed to cold. This occurs especially in the fingers and toes causing them to turn red, pale, and then blue in succession and is usually painful. If this becomes severe, it can progress to local gangrene. |

**Lay Language for Drug Risks**

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| **Metabolic/Endocrine** | |
| Adrenal Suppression | Decreased production of steroids by the body, which may cause weakness, confusion, fatigue, listlessness, low blood pressure, dizziness, weight loss, and loss of appetite. May also cause abdominal cramps, nausea, vomiting and diarrhea and changes in electrolytes (body salts). Symptoms may be worse at times of stress, such as high fevers, infection, surgery or a serious accident. If your adrenal glands do not produce enough hormones, you will need to take oral medications to replace the hormones |
| Proteinuria | Excess protein in the urine. May cause fluid retention. |
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| Hypercalcemia | High levels of calcium in the blood. May cause sleepiness, weakness and if severe, may cause coma. It may also decrease kidney function. |
| Hyperkalemia | High levels of potassium in the blood, which can cause the heart to stop beating. This can be very serious and life threatening. |
| Increased blood sugar/ Hyperglycemia | Excess sugar in the blood, if severe may require hospitalization and urgent treatment. |
| Low blood sugar / hypoglycemia | Abnormal decrease in sugar in the blood, which can cause weakness, fatigue, and if severe, can cause loss of consciousness. |
| Electrolyte changes | Changes in electrolytes (body salts) which usually do not cause any symptoms but that can sometimes cause fatigue, muscle weakness, cramping, rigidity, irregular heart beat, or seizures. This can be severe and possibly life threatening. This could require hospitalization and intravenous treatment |
| Hypocalcemia | Decreased levels of calcium in the blood which can lead to weakness, muscle spasms, or seizures. |
| Hyponatremia | Decreased levels of sodium in the blood, which can cause confusion, seizures, fatigue and low levels of consciousness. |
| Hypokalemia | Decreased levels of potassium in the blood, which can cause irregular heart beat. |
| Elevated lipase, amylase | May indicate inflammation of the pancreas, which could result in abdominal pain and discomfort and could require hospitalization and intravenous treatment. |
| Metabolic Acidosis | The body becomes more acid. This can lead to a decreased function in a number of organs. This can be serious and life threatening. |
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| Hypophosphatemia | Low phosphate, which may result in muscle weakness, bone pain, confusion and muscle breakdown |
| Hypomagnesemia | Low magnesium, which may result in muscle cramps, weakness, tremors or irregular heartbeat. |
| Low thyroid function | May cause fatigue, weight gain, fluid retention, feeling cold, decreased cognitive function. |
| High thyroid function | May cause fatigue, weight loss, rapid heartbeat, sweating, trouble with heat, nervousness. |
| Bilirubinemia | High levels of bilirubin in the blood. This may mean that that too many red cells are being destroyed, or that the liver is not removing bilirubin from the blood properly. |
| Abnormal Liver Function Tests (Elevated Liver | Means that your liver is not functioning properly and can cause malaise, fatigue, and jaundice (yellowing of the skin). Although this is usually mild and |

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| Enzymes) | reversible, this can be serious or life threatening. |
| | Means that you kidneys are not functioning properly and wastes are not being removed from your blood. If this becomes severe, it could require dialysis, which is filtering and removal of wastes from the blood using a catheter and a machine. |
| Edema | Build up of fluid in the body causing swelling. |
| Anasarca | Build up of fluid throughout the whole body, which occurs in severely ill people. |
| Ascites | Build up of fluid in the abdomen, which causes bloating and discomfort. This could require that the fluid be removed by a procedure called paracentesis |
| Tumor lysis syndrome | Disturbances in the minerals and chemicals in your system, which could result in life threatening complications if not managed appropriately. TLS is caused by the sudden, rapid death of cancer cells in response to treatment. When cancer cells are killed by a cancer drug, they may spill their inner (intracellular) contents, which accumulate faster then they can be eliminated. This debris from the cancer cells can change the balance of the chemistry of the body, and it could result in dangerous disturbances. Symptoms of tumor lysis syndrome may include severe nausea and vomiting, shortness of breath, an irregular heartbeat, urine abnormalities, severe fatigue and /or joint pain. |
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| **Musculoskeletal** | |
| Arthralgia | Joint pain |
| Ostealgia | Bone pain |
| Myalgia | Muscle aches |
| Rhabdomyolysis | Rhabdomyolysis is a breakdown of muscle fibers. It occurs when muscle cells die and release cell contents into the blood stream. It can cause muscle pain and a number of health problems, including damage to the kidneys. If severe, this could be life threatening. |
| **Urinary** | |
| Kidney failure | See abnormal kidney function tests |
| Hematuria | Blood in urine |
| Hemolytic Uremic Syndrome | Red blood cells begin to dissolve, which leave wastes in the blood and the kidneys are unable to get rid of excess fluid and wastes. This may cause high blood pressure or swelling of the face, hands, feet, or the entire body. This can progress to acute kidney failure. |
| Hemorrhagic cystitis | Inflammation of the bladder with severe bleeding |
| Abnormal kidney function tests (elevated creatinine, protein in the urine, elevated BUN), kidney failure, elevated uric acid levels | Abnormal kidney function tests, which means the kidneys aren't working properly. When the kidneys do not work properly, wastes can build up in your blood, leading to swelling in the arms and legs, tiredness and weakness. This could become severe, requiring hospitalization and dialysis to clean the wastes out of your blood. If the wastes are not removed from your blood, this could cause seizures and be life threatening. |

**Lay Language for Drug Risks**

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| Elevated uric acid levels | Which may worsen kidney function; cause joint pain (gout) and kidney stones. May cause kidney failure, which may be reversible |
| **Heart** | |
| Changes in ECG | Changes to the electrical activity of the heart. These can be mild and not require treatment or may be serious. |
| Changes in heart rhythm | The heart beats too fast or too slow |
| Hypertension | High blood pressure |
| Hypotension | Low blood pressure |
| Heart palpitations | Heart beats that are fast and hard |
| Angina | Chest pain |
| Bradycardia | Slow heart rate |
| Tachycardia | Fast heart rate |
| Cardiac arrest | Sudden, unexpected stopping of the heart. |
| Cardiac toxicity | Damage to the heart |
| Cardiomyopathy | Heart muscle becomes damaged and the heart doesn't pump properly |
| Heart failure, decreased heart function, damage to heart muscle | The heart is not able to pump blood properly, which can cause weakness and tiredness, fluid retention, and fluid build-up in the lungs, which can cause shortness of breath. |
| Myocardial infarction (MI) | Heart attack |
| Arterial thrombosis | Blood clot in an artery that blocks the artery. This could be serious and life threatening. |
| Cardiac effusion | Collection of fluid around the heart |
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| **Respiratory** | |
| Fluid in lungs | Can cause shortness of breath. If severe, it may require hospitalization and treatment. It can be serious or life threatening. |
| Interstitial pneumonitis, pneumonitis | Inflammation of the lungs, which can cause shortness of breath and difficulty breathing. If severe, this can be life threatening. |
| Respiratory failure | Difficulty breathing with low levels of oxygen in the blood, which could be serious and life threatening and require you to have a tube inserted into your windpipe that is hooked up to a machine to help you breathe. |
| Nasal congestion | Stuffy nose |
| Pulmonary fibrosis | Tissue in the lungs becomes stiff making breathing difficult, resulting in shortness of breath, and if severe, can cause heart failure. |
| Pulmonary Hypertension | Abnormally high blood pressure in the blood vessels in the lungs, which makes it harder to pump blood into the lungs. May cause fatigue, shortness of breath, chest pain, and ankle swelling. Can lead to loss of consciousness and could be serious and life threatening. |
| Pleural effusion | Collection of fluid around the lungs in the chest cavity, which can cause shortness of breath and may require treatment. |
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| **Mouth, Esophagus, Stomach and Intestines (Gastrointestinal)** | |
| Diarrhea | Frequent, loose watery stools, which can cause dehydration and may require hospitalization and treatment with intravenous fluids. |
| Abdominal cramps | Pain in the abdomen |

**Lay Language for Drug Risks**

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| Nausea | Feeling sick to the stomach |
| Emesis | Vomiting, throwing up |
| Constipation | Difficulty passing stools |
| Changes in taste/ Taste disorder | Strange taste in the mouth. |
| Abdominal distention | Bloating |
| Mucositis/stomatitis | Sores in the mouth and esophagus, which may be painful and cause difficulty swallowing. |
| Pancreatitis / inflammation of the pancreas | Inflammation of the pancreas causing pain in the upper abdomen. This could become severe and cause nausea and vomiting, fever and rapid heart rate. This could require hospitalization and may be life threatening. |
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| Bowel perforation | Perforation of the digestive system (holes in the intestine) is another rare risk that has been reported with Thalidomide use. These "holes" will result in pain and may require surgery, treatment with antibiotics and could be life threatening. |
| Anorexia | Loss of appetite |
| Intestinal obstruction | Blockage of the intestine or bowel |
| Acute cholecystitis | Gall stones, which may cause upper abdominal pain and require hospitalization and surgery. |
| Autoimmune Enteritis | This is when your immune system attacks normal cells in your body, including the cells that line your digestive tract. This may result in bleeding and inflammation of the esophagus, bowel (intestines), and lower GI tract (colon), which can cause bleeding, diarrhea and perforations (holes). This could be serious or life threatening. Hospitalization and treatment with medications (steroids) may be necessary. This can become severe and may require surgical removal of parts of the intestines or colon. These surgical procedures might result in your having a stoma (hole) though which digested food passes. |
| **Skin** | |
| Alopecia | Loss of hair |
| Extravasation | To leak out of the vein during an infusion or injection. This may cause serious damage to local tissues. |
| Hyperpigmentation | Darkening of the skin |
| Hypopigmentation / vitiligo | Patches of the skin turn lighter than the surrounding skin |
| Stevens- Johnson Syndrome | Skin condition that causes painful blisters and sores of the skin and mucous membranes, especially in the mouth. May cause difficulty eating and swallowing. This is similar to the skin damage from a severe burn and is serious and life threatening. |
| Urticaria | Hives |
| Nail disorder | Changes in color and thickness, darkening of the nail bed, thickening, shedding |
| Dermatitis | Skin irritation, rash |
| Hyperkeratosis | Thickening of the skin, nails. |
| Pruritis | Itchy skin |
| Erythema | Redness of the skin |

**Lay Language for Drug Risks**

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| Injection site reaction | An allergic reaction at the site where an injection (shot) was given, which may cause some redness and swelling |
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| **Nervous System** | |
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| Altered mental state | Not thinking clearly |
| Asthenia | Feeling weak and having no energy |
| Brain stem edema | Accumulation of fluid around the brain stem, This can be life threatening |
| Confusion | Disorientation, inappropriate response to the environment |
| Distal parathesias | Numbness and tingling in the hands and feet. |
| Encephalopathy | Disease of the brain that severely alters thinking. |
| Headache | Pain in the head |
| Insomnia | Inability to sleep |
| Neurologic deficits | A neurologic deficit is a decrease in the function of the brain, spinal cord, muscles, and/or nerves. Neurologic deficits include inability to speak, decreased sensation, loss of balance, weakness, cognitive dysfunction, visual changes, abnormal reflexes, and problems walking. |
| Neuropathy | Damage to the nerves which can cause numbness, pain, and weakness |
| Seizures | Convulsions |
| Visual disturbances | Inability to see properly. |
| Inflammation of the brain | Which may cause neurological damage including confusion, hallucinations, difficulty walking or using arms. |
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| **Other** | |
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| Ascites | Build up of fluid in the abdomen that causes abdominal distention and bloating. May require drainage using a procedure called paracentesis. |
| Edema | Build up of fluid in the extremities |
| Fever | Abnormally high body temperature |
| Hyperpyrexia | High body temperature, a fever. |
| Immunological effects | Effect on the immune system |
| Opportunistic Infections | An infection caused by an organism that usually does not cause illness, but causes disease when a person's immune response (resistance) to infection is impaired. These are often serious and life threatening. |
| Rigors | Chills and shivering |

**Lay Language for Drug Risks**

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| GvHD Graft –Versus Host Disease | This is a condition in which immune cells from the donor's tissue attack your organs. The risk of severe GVHD depends on the type pf BMT (bone marrow transplant) or SCT (stem cell transplant) and the quality(how closely) the patient and donor cells march. There are acute and chronic forms of GVHD. Acute GVHD usually affects the skin, intestines, and liver and may start one week to three months after transplant. Chronic GVHD begins later and can affect these organs as well as the lung, mucous membranes and/or other organs. |
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