Great White Hope

Stephen Gendin boosts his plunging neutrophils with a cloning drug

October 1, 1999 As told to Lark Lands, PhD

After Stephen took a 13-month break in therapy due to failing treatments and intolerable side effects, he began a five-drug regimen of ddI (Videx), d4T (Zerit), indinavir (Crixivan), ritonavir (Norvir) and hydroxyurea (Hydrea) last May. The combo-created good news was a viral load that plummeted from more than 500,000 to 36,000 to 5,000 in six weeks. The bad news was that his neutrophils—the type of white blood cells that are crucial for fighting off bacterial infections—plunged downhill with it, creating what is called neutropenia.

Although in recent years we have seen that people can tolerate lower neutrophil counts than was once thought, when neutrophils drop below a certain level, the body is at great risk of developing life-threatening infections. The cutoff point for worry differs from doctor to doctor, but generally, if the neutrophil count dips below 500 cells per cubic millimeter, corrective therapy is initiated. (Stephen's doctor apparently became concerned about the downward trend even before his count reached that point.)

The most common cause of neutropenia in people with HIV is meds. Currently, the two most frequent culprits are the antiretrovirals AZT (Retrovir) and hydroxyurea (Hydrea)—the likely problem child for Stephen. Since the bone marrow produces neutrophils and other white blood cells, a number of infections and cancers that damage the bone marrow can also result in neutropenia. For example, if someone has Mycobacterium avium or cytomegalovirus in his bone marrow, he may become neutropenic. Fortunately, with the dramatic decline in opportunistic infections (OIs), neutropenia from this source has decreased.

When medications are the cause, stopping them will often allow the bone marrow to restore counts to an acceptable level. If this is not possible because of limited drug choices, or if cessation of medications fails to restore an acceptable neutrophil level, or if the physician deems the level so low that there is a high risk of serious infections, the drug G-CSF (Neupogen) can be administered. Neupogen literally clones neutrophils, usually bringing them up to a good level within a week. The drug's most common side effect is bone pain, controllable with pain meds.

Stephen began Neupogen in June, and within a month his neutrophils bounced back from their low of 1,039 (49.5 percent) to 6,667 (84.4 percent). On lab reports, neutrophils are listed under the Complete Blood Count "Differential" as either "POLY" (as here) or "SEG." Neutrophils are reported

as a percentage of the white blood count (WBC) or as a calculation from that percentage (not always listed on reports). For example: If the total WBC is 3,000 and the percent of neutrophils is 40, then the total neutrophil count is 3,000 x .40 = 1,200.

For many people with AIDS, including Stephen, the use of Neupogen can allow neutrophil-depressing drug therapies to be maintained. Neupogen has also made the treatment of AIDS-related cancers more effective because higher doses of chemotherapy can be given without causing life-threatening bacterial infections, a risk that used to impede effective cancer therapy. Unfortunately, the drug's high price ($160 per injection at the standard dose) prevents many uninsured PWAs from gaining access to it.

Stephen began with the standard Neupogen regimen: 300 mcg injected daily until the neutrophil count rises to an acceptable level (well above 500). Like most people on Neupogen, Stephen has learned to give himself the shots. Most people find self-injection preferable to visiting a physician's office every day.

Stephen has decided to continue the Neupogen, but at a reduced level of only one or two shots per week. How often you take Neupogen after the neutrophils and WBC return to normal depends on the cause of the neutropenia. If it's related to meds, stopping them—when that is an option—usually solves the problem. If there's an underlying OI, you may have to take the drug three to five times a week. So each patient needs to be monitored closely.

If Stephen does not mind continuing the Neupogen injections, and his neutrophil counts remain in the safe range, it would be ideal to stay on his current regimen. But he could consider dropping the hydroxyurea, which others often do without undercutting their regimen's potency. There is no right or wrong here.

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