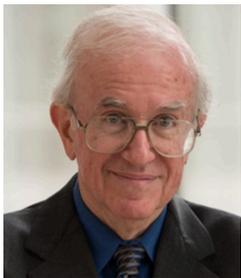




# Testis Cancer

## RESEARCH UPDATE

OVER THE PAST 40 years, the survival rate for testicular cancer has flipped. Once, the disease was almost a death sentence. Today, the chemotherapy regimen developed by **LARRY EINHORN, MD**, has elevated the cure rate to almost 95 percent.



While that may seem impressive, Einhorn and his colleagues at Indiana University School of Medicine are not satisfied and remain intent on improving testis cancer outcomes. We believe patients should not have to endure long-term side effects for the sake of the cure. We are also exploring treatments that improve outcomes for men who see their cancer return—including options that go beyond traditional chemotherapy. And, we're closing in on a biomarker that can help us detect the faintest traces of the disease.

Each year, 8,000 men are diagnosed with testicular cancer. Often, they make their way to IU Melvin and Bren Simon Comprehensive Cancer Center, one of the few places nationally with the expertise and resources to fundamentally alter care. Our research does more than help cure those who turn to us—it changes the standard of care for patients worldwide.

With your philanthropic support, we can continue to provide this level of expertise for years to come.

### Survivorship

For most patients, a combination of cisplatin and two other chemotherapy drugs eradicates their disease. Unfortunately, these drugs can also cause ringing in their ears or numbness in their extremities. Typically, such long-term side effects are annoying but do not disrupt daily life. These men continue their careers and spend years watching their children grow up. Some see these residual side effects as a modest price to pay for survivorship.



Yet, other survivors lose their hearing entirely, lose mobility, or find themselves at greater risk for cardiovascular disease. **LOIS TRAVIS, MD, SCD**, believes that a cure should not come at such an expense.

An internationally recognized expert in survivorship, Travis oversees The Platinum Study, a global consortium of researchers working to understand the toll of cisplatin. At the moment, the group is looking for factors that might predict whether a patient is at risk for long-term issues. For example, the group linked hearing loss in some patients to the total dose of cisplatin they received. Others have a variant in their genes, making them susceptible to neuropathy.

Those insights are invaluable. They can help oncologists determine which patients might be most at risk. Now, the group wants to take the next logical step: designing and testing ways to reduce the likelihood a patient will endure the worst long-term side effects.

### Relapsed Disease

Almost 80 percent of men with metastatic disease are cured with the chemotherapy regimen Einhorn developed at IU School of Medicine. Unfortunately, some see their testicular cancer return.

At Indiana University, the standard protocol for patients with relapsed disease is high-dose chemotherapy and a stem-cell transplant. Studies over the past 20 years have shown that this approach will cure about 60 percent of patients. However, Einhorn and his protégé **NABIL ADRA, MD**, are looking for ways to boost that cure rate.



Currently, IU is conducting a clinical trial giving one group of patients the time-tested therapy followed by observation. Another group is receiving intensive high-dose chemotherapy followed by a chemotherapy drug in pill form for three months as a maintenance therapy. The goal is to understand if this maintenance therapy improves the cure rate compared to men who receive high-dose chemotherapy alone.



This research is being funded by philanthropic support from donors like you. In many other cancers, pharmaceutical companies are more likely to invest and support such trials. That is not the case for a rare disease like testicular cancer, making donor support crucial for researchers to explore ways to advance treatment.

## Refractory Disease

Unfortunately there are still patients who are not cured by standard or intensive high-dose chemotherapy. Their cancer continues to spread even in the face of intensive treatments.

Several years ago, IU researchers conducted genomic testing on these patients. The results showed that their cancers often overexpress a certain protein that drives tumor growth. IU researchers immediately began to search for a way to block it.

This spring, Adra launched a clinical trial for a drug he hopes does just that. IU plans to enroll up to 25 patients from across the country who will take a single pill orally each day. While it's still early, researchers are optimistic.

Unlike chemotherapy, this drug is a targeted therapy, so it spares patients from the draining physical toll that comes with a cisplatin-based protocol. Additionally, patients can stay on the drug, which was initially developed for kidney cancer, as long as needed.

## Biomarker

Time is cancer's ally. The longer it goes undetected—and untreated—the more challenging it can be to eliminate. Even when treatment is successful, oncologists need a tool to easily monitor whether the disease is trying to return.

While there are blood tests available, they're only about 60% accurate—a number far too low to ensure confidence. However, researchers have identified a new biomarker that holds promise. When heavy amounts are circulating in a patient's bloodstream, it's evidence that a tumor is present.

In collaboration with the University of British Columbia, IU researchers are developing and optimizing a blood test for this biomarker, a minimally invasive way for physicians to screen patients for testicular cancer. So far, data indicates it's roughly 90% accurate. Currently,

scientists are working to clarify how best to interpret the results of this new blood test.

Such a test would also be versatile. For example, a patient with localized disease often undergoes surgery or chemotherapy to prevent cancer from recurring. A highly accurate diagnostic test would help us know whether additional procedures such as surgery or chemotherapy are truly required – or whether a patient should be followed with close observation alone.



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