

Viruses, Vaccines, and Vigilance

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Every age has its medical terrors—bubonic plague (in the 6th, 14th, and 17th centuries), smallpox (in the 16th to 18th centuries), the so-called “Spanish flu” of 1918, which actually originated in the U.S., the AIDS pandemic—and, now, smallpox again? Well, maybe not—but that might be because the national program to inoculate 500,000 health care workers, as described by Dr. Babinchak, could signal a shift in our ability to control epidemics by ensuring that they never happen. It could be the start of preventive maintenance on a grand scale. Implicit in Dr. Babinchak’s article is the notion that the terrorist attacks of September 11, 2001 (“9/11”), rather than any past or present health crisis, provided the impetus for the current smallpox vaccination campaign—even though the threat of chemical and biological weapons has been hanging over our heads for years.

THE SMALLPOX THREAT

In fact, this threat goes back to Pontiac’s rebellion in 1763, when British officials and fur traders deliberately gave smallpox-contaminated blankets to the Indians at Fort Pitt (now Pittsburgh). A visitor from the early part of the 18th century to modern-day America might be surprised to learn, therefore, that we are now taking the risky (to some) step of injecting ourselves with a live virus in order to prevent a hypothetical outbreak. Then again, this same visitor probably could not have imagined that smallpox would ever be eradicated from the planet in the first place. But just three decades after Pontiac’s rebellion, in 1796, Edward Jenner developed the first vaccine, which led to the eventual eradication of smallpox. Or so we thought.

What does all of this have to do with P&T committee members, you may ask, if the vaccine is not even available on hospital formularies? For one thing, it illustrates the changing demands on health care workers. Dr. Babinchak concludes that physicians have always been leaders in preventing the spread of infec-

tious disease. In the days when smallpox was rampant, doctors risked their lives to treat patients when no vaccine was available; today, they are inoculating themselves so that they can respond immediately to an outbreak and thereby prevent an epidemic. It’s a different kind of leadership from what was exhibited centuries or even decades ago; it’s also an act of self-preservation.

So, while we’re grateful to have the latest vaccines (and antimicrobials, statins, beta blockers, etc.) on our formularies, we should also remember that it is preferable to not need to use them at all. The reality, of course, is that vaccinating 500,000 “first responders” is not nearly enough to combat a large-scale terrorist attack in a country of more than 286 million people. For the first time in our history, we must ensure an “adequate” supply of vaccine and simultaneously take steps to see that we don’t have to use it.

VITAMINS AND VICTIMS

Another unintended consequence of our technological and medical advances is the problem of polypharmacy. In addition to the very real threat of drug–drug interactions, physicians now worry about the dangers of the seemingly endless over-the-counter (OTC) vitamins, minerals, and dietary supplements that have flooded the U.S. market and which have the potential to interact with prescription drugs and with each other. In this issue of *P&T*, Drs. Regal and Prescott, in their short articles on iron and zinc, discuss the dangers of the inappropriate use of these minerals. And Dr. Cunha, in the second installment of his five-part series, discusses the desirable pharmacokinetic and pharmacodynamic properties of antibiotics—information that is especially relevant today, given the ubiquitous problem of antibiotic resistance.

Although they are not perceived to be as dangerous as terrorists, scam artists of the 20th century found their own ways to exploit modern technology by capitalizing on the proliferation of OTC vitamins and supplements with cleverly

crafted schemes to lure unwitting patients and their loved ones into thinking that they could be cured. Dr. Marzili describes an experience with a patient who was, it seems, so eager to cure her mother’s cancer that she allowed herself to be conned out of thousands of dollars by a vitamin hoax.

BACK TO SMALLPOX

Now that thousands of health care workers have been vaccinated and Dr. Babinchak’s article is in print, the cynical response is to speculate that smallpox is no longer a significant threat. If we’re lucky, of course, we will never know how deadly a 21st-century outbreak could have been. Despite all of our scientific advances, though, and thanks in part to the incomparable power of the news media to instill panic, we still have plenty of persistent viruses and afflictions to scare us. Viruses, it seems, mutate with the same alarming rapidity as terrorists’ tactics, and so in a matter of a few short months, the dreaded disease *du jour* has shifted from smallpox to severe acute respiratory syndrome (SARS) to monkeypox—which, interestingly, the smallpox vaccine can supposedly help to prevent—to the West Nile flu (again). But if history has taught us anything, it is to never assume that a virus can’t return again—never say never.

So what does all of this mean for our leaders in the health care industry? What does it take to achieve victory over virulence, violence, and vengeance? Just as preventing another 9/11 will require greater intelligence (in all senses of the word) than the terrorists possess, I suspect that preventing future medical scams will require the ability to outcon the con artist; preventing future epidemics will require a historical awareness of diseases along with the ability to predict trends (these skills are not taught in most colleges). It will also require a commitment to our resources (financial and otherwise), and, perhaps most important, it will require vigilance.

On that cheerful note, happy reading!