Can appendicitis be treated solely with medication?

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For 130 years, surgery has been the standard treatment for appendicitis—inflammation of the appendix, a short tube extending from the colon.

After all, it's best to remove an infected body part that is not essential to survival rather than risk a rupture that spews bacteria into the abdomen. Right? Maybe not.

Dr. David Talan, professor in the department of emergency medicine at the David Geffen School of Medicine at UCLA, is helping to lead a $12-million clinical trial to determine whether treating appendicitis solely with antibiotics can be a safe, effective and less expensive alternative to surgery.

Talan, who also holds an appointment in the department of medicine's division of infectious diseases, recently addressed questions about this alternative approach to treating appendicitis.

Why are you looking into this subject?

About one in 10 people in the U.S. will be diagnosed with an appendicitis in their lifetime, so it's very common. Over time, the medical community has become almost exclusively reliant on surgery to address appendicitis—an operation called an appendectomy. Today, surgeons perform something like 300,000 appendectomies in the U.S. each year, and it's considered the most common emergency surgery.

Traditional medical approaches are constantly being re-evaluated to determine their value to society. Extensive data from a large-scale study will help patients and their physicians make more informed health care decisions.

You seem to be challenging more than a century of medical tradition. How do you respond to skeptics?

Routine appendectomy has served us well for a long time, so we should be skeptical of change. But skepticism also demands that we carefully

study and compare the relative efficacy of different treatment approaches.

Surgery was available decades before antibiotics, and when antibiotics were introduced, they made surgeries safer. Only in the last few years have we begun to carefully research the possibility that antibiotics alone might be a reasonable first treatment instead of surgery. Simultaneously, our understanding of the disease has changed, and it's now clear that when caught early and treated with antibiotics, appendicitis is not always a ticking time bomb that must be removed for fear of rupture and death.

Is there evidence to suggest that antibiotics could be a good alternative to an appendectomy?

There have been seven studies outside the U.S. in which patients with the earliest stage of appendicitis either received antibiotics or underwent an urgent appendectomy. All patients were hospitalized for several days. Together, these studies found that an antibiotic approach appeared to be safe and was associated with quicker recovery compared to surgery. But over a year's time, about 25 percent of patients had appendicitis that required surgery.

Our UCLA group was the first to receive National Institutes of Health funding and conducted the first U.S. trial last year. In that study done at Olive View-UCLA Medical Center, the innovation we found was that most patients treated with antibiotics could be successfully managed as outpatients, thus avoiding hospital admission and increasing the potential to substantially reduce costs.

The bottom line is that managing appendicitis with antibiotics shows promise as a safe, lower-cost alternative to surgery. However, we should not discount the safety of surgery established over decades and its

effectiveness to cure the disease once and for all. Surgery also has advanced with endoscopic techniques. Far more data are needed to determine the risk and benefit tradeoffs in individual patients and how these might best be incorporated in a model of shared decision-making with patients.

How will you go about collecting additional data?

We will be comparing the outcomes of more than 1,500 patients diagnosed with appendicitis at UCLA-affiliated and other hospitals across the country. Participants will be randomly selected for treatment with either antibiotics or an appendectomy, and we will track a wide range of data over a year or more. Among those data points are recurrence of appendicitis, length of hospital stay, repeat health care visits and treatment costs. We also will track patient experiences using self-reported quality-of-life measurements like pain and discomfort, mobility and anxiety.

It is the largest randomized clinical trial on this subject. Dr. David Flum, a surgeon at the University of Washington, is the principal investigator, and I am the study director.

We've been working on this project for several years and anticipate completion in 2021.

Recently, there has been extensive news coverage about the spread of so-called "superbugs"—bacteria that develop a resistance to medication in part due to the overuse of antibiotics. Are you concerned that using antibiotics to treat appendicitis will contribute to the problem?

No. The spread of medication-resistant bacteria is a serious challenge. But antibiotics, when properly prescribed, are an important tool in fighting illness. Use of antibiotics presents problems when they are inappropriately prescribed for conditions without a demonstrated need, such as for colds and simple bronchitis. It's also problematic when antibiotics are dumped into our food supply; the single largest user of antibiotics is the livestock industry.

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