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Darkow Cartoons

Sudoku XML

Blogs

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Food Forum

Special Sections Special Ad Sections Special Sports Sections



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Targeting tough bacteria

Troops suffer drug-resistant infections.

By JANESE HEAVIN of the Tribune's staff Published Saturday, May 5, 2007



Jason Calhoun, chairman of orthopedic surgery at the MU School of Medicine, checks Katie Politte's healing ankle as her father, Marty Robertson, watches Tuesday at University Hospital. Katie, 14, of Lebanon, Mo., is recovering from an infection in her ankle, which was injured during a basketball game three years ago. Calhoun has been awarded a \$1.6 million grant from the U.S. Army Institute of Surgical Research to study infections that are resistant to antibiotics.

Soldiers wounded by shrapnel from improvised bombs in Iraq and Afghanistan are finding themselves fighting another enemy: stubborn infections that can lead to extensive surgery and sometimes amputation.

And because the bacteria causing the infections are resisting common antibiotics, soldiers are fighting the battle with little help from modern medicine.

A University of Missouri-Columbia surgeon is working to change that. Jason Calhoun, chairman of the orthopedic surgery department at MU's School of Medicine, received a \$1.6 million grant earlier this year to conduct a four-year study aimed at finding antibiotics that can effectively treat drug-resistant bacteria.

Multi-drug-resistant organisms are common in the environment and can enter the body through ordinary puncture wounds.

But blasts from the improvised explosive devices targeting U.S. soldiers overseas are causing the contamination to enter soft tissue and bone, which are more difficult to treat.

"Over the past three years, many of our soldiers have had open fractures where the soft tissue is injured and the bone is injured and there is significant contamination in that tissue," Calhoun said.

"Many of those soldiers go on to develop a severe infection of their extremity," he said. "Ultimately, this research could mean fewer extremity





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infections, fewer surgeries and fewer amputations."

Lab tests during the research period will simulate blast wounds and examine "increasingly common" infections among troops in Iraq, including Acinetobacter baumannii, Pseudomonas aeruginosa, Klebsiella pneumoniae and Staphylococcus aureus.

The research could also mean treatment for similar infections that occur in civilian life.

Katie Politte and her family, of Lebanon, Mo., are keeping their fingers crossed. Three years ago, Katie, now 14, twisted her foot in a basketball game and developed a life-threatening infection that has cost her the use of her right ankle.

The infection started after bacteria resistant to antibiotics built up in her joint. It took three months in intensive care, two heart surgeries and countless leg operations to get the infection out of her body.

"There were times we weren't sure she was going to make it," said Calhoun, who is one of several doctors treating her at University Hospital.

Katie's right leg is now shorter than the left leg, and her right ankle doesn't turn. She wears a custom-made brace to keep it secure.

An artificial joint isn't an option because the risk of infection is too great. Calhoun believes medical advances could lead to alternative treatments, such as a new joint made from infection-resistant material or from Katie's own bone material. Calhoun's research could help, too, if he finds antibiotics that would prevent infection.

"Anything they can do that would allow her to get mobility back," Katie's dad, Marty Robertson, said. "Hopefully, there's a breakthrough."

Calhoun will also study whether earlier treatment would help soldiers on the front line. He believes more immediate care would result in a greater chance of saving soldiers from having arms and legs amputated.

"What would happen if we gave antibiotics to the soldiers at the time of the injury? My guess is we would see infections cut down," he said. "Now we just need to test it out and see if that's true."

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