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From the Selected Works of Vivian C. McAlister

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Could humans be transfused with pig and cow blood?

Donalee Moulton, *Medical Post*

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ABSTRACT (ABSTRACT)

Today, hemophilia patients who have developed antibodies against human factor VIII use factor VIII derived from pigs' blood. "There is no evidence of disease being transferred," said Dr. [Vivian McAlister]. "However, great caution is required to make sure we know all the potential risks are controlled before transfusions of cells are attempted."

FULL TEXT

HALIFAX – Researchers at the Queen Elizabeth II Health Sciences Centre here are investigating the possibility that pig's blood—and even cow's blood—may one day be safely and effectively transfused into humans.

"What we are trying to do is turn blood into another medicine that can be safely stored in the fridge and safely used," said Dr. Vivian McAlister, lead researcher and a surgeon at the QEII.

Attempting to use animal blood to treat human conditions is not a new idea. Physicians were exploring such possibilities as early as the 16th century when Pope Innocent VIII was reported to have received a blood transfusion from a farm animal.

Today, hemophilia patients who have developed antibodies against human factor VIII use factor VIII derived from pigs' blood. "There is no evidence of disease being transferred," said Dr. McAlister. "However, great caution is required to make sure we know all the potential risks are controlled before transfusions of cells are attempted."

For instance, he and colleagues have come up with a way to remove from pig's blood a troublesome antigen called galactosealpha-1-3-galactose (alpha-Gal) that causes an immune reaction in humans.

As a first step, they discovered levels of alpha-Gal vary from one pig to another. But even those animals with the lowest levels still have too much to allow for a transfusion to a human being.

So the researchers went on to investigate how this level could be further reduced. They have now found a way to remove virtually all the alpha-Gal from pig's blood using an enzyme called galactosidase in conjunction with polyethylene glycol.

There are, however, other problems with using pigs' blood as a controlled source for human transfusions.

For example, the animal's blood vessels are very small, noted Dr. McAlister. Cows, on the other hand, have large vessels.

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