The Source of Transplants

It looked like just an ordinary farm. They had mostly pigs and they seemed to be taken care of very well. What was not obvious was that these were not ordinary pigs. They had been genetically engineered. A human gene on the p arm of chromosome six had been spliced into their genome. These experiments were done so that the organs of the pigs (livers, hearts and kidneys) would be histocompatible with humans. The company that owned the farm realized a number of years ago that a shortage of human organs for transplant would make xenotransplantation a necessity.

Michael had been on the transplant list for a kidney for five years. His kidneys were deteriorating due to polycystic kidney disease (a hereditary trait) and he had been on dialysis for about 7 years. When an article was published in the paper about the pig farm he called his doctor. He asked if he could be involved in the human trials that were being discussed in the article. His doctor didn't know.

1. List three courses of action that Michael might take next.

2. The FDA has very strict rules about experimental treatments, especially because of recent scrutiny. One requirement is that long and stringent animal testing be done before tests are performed on humans. Why doesn't that apply to this case?

3. If the company were doing human trials, what specifically should they look for in participants? List three things.

4. If Michael is accepted into the trials, should his family take part in the decision regarding his participation?

5. Why is it necessary to suppress a transplant patient’s immune system?

6. Describe in detail how Michael’s immune system would respond if he received a transplant without receiving immunosuppressants.

7. Would you accept an animal organ if it were available for a needed transplant? Why or why not?

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