

Jim and the Forgotten Embryos: A Case on Stem Cell-Based Therapy

by

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Part I – Late Night News

Sandy was barely watching the reality show on TV. Instead, she was anxiously waiting for her son Jim to arrive home for the weekend. As a freshman in college, Jim didn't get a chance to come home often, so Sandy was thrilled to spend a few days with him. However, she did not appreciate the fact that he was going to be home so late. Jim knew how worried she got whenever he drove home late at night. Her husband Matt, on the other hand, was completely absorbed in the TV show. That's men for you, thought Sandy.

The phone ring startled Sandy out of her thoughts.

"Hello?" she answered in a high-pitched voice that surprised her.

"Is this Mrs. Allison?" an unfamiliar voice replied.

"Yes. Is something wrong?" Sandy asked, her heart beating in her throat.

"I'm very sorry to tell you this over the phone ma'am, but your son Jim has been in a car accident. He is in stable condition right now, but it would be best if you could get to the hospital as soon as possible."

Sandy didn't remember the car ride to the hospital. Thankfully, her husband Matt kept his composure as he drove. It took all of Sandy's concentration to make out the words the attending physician was saying.

"The good news is that even though your son lost a lot of blood in the car accident, he is in stable condition at the moment. However, his spinal cord was injured at the T7 vertebra, and the resulting inflammation damaged precious nerve cells in that area, cells that are essential for carrying electrical impulses to Jim's legs."

The attending physician paused and swallowed. "In other words, your son is paralyzed from the chest down. We are not sure that he will be able to walk again."

As shock and dread washed over her, Sandy had to hold on to Matt so she wouldn't fall. The physician's next words came to her as if from very far away.

"We do believe that your son would be a very good candidate for an experimental treatment using injection of human embryonic stem cells into the site of the damaged nerve cells. If you'd like, I can put you in touch with Dr. Gupta, the physician who is leading the clinical trial."

Sandy could barely concentrate. She had so many questions to ask the doctors before she would even consider subjecting Jim to such a treatment.

Questions

1. What is a stem cell?
2. How are embryonic stem cells different from other types of stem cells?
3. Given their function, how do you think embryonic stem cells are used as a treatment for damaged cells?

Part II – An Ethical Dilemma

Over the next several days, Sandy, Matt, and Jim debated the possibility of an embryonic stem cell treatment. The Allisons were conflicted about this decision because they were devout Christians who strongly opposed abortion, and they had heard that embryonic stem cells came from aborted fetuses.

Sandy brought this issue up with Dr. Gupta, the head investigator for the experimental stem cell study.

“Doctor, we are excited about the possibility of a treatment that may enable Jim to walk again. However, we do not want to harm other lives in the process of curing our son. Will this treatment result in the death of innocent lives?” Sandy asked Dr. Gupta.

Questions

1. Why is there controversy surrounding the therapeutic use of embryonic stem cells?
2. What embryos are used as the source for embryonic stem cells? What would happen to these embryos if they were not used in such treatments?
3. Taking into account the information you provided for the last question, how would you answer Sandy’s question to Dr. Gupta?

Part III – Stem Cells from Forgotten Embryos

“I’m glad you asked me that question, Mrs. Allison,” said Dr. Gupta. “Let me explain to you the source of the stem cells we would like to use to treat Jim. We take these cells from fertilized embryos left over from *in vitro* fertilization procedures. Basically, during the process of *in vitro* fertilization, many eggs are fertilized and only a few are ever used. The rest of the fertilized eggs, which at this point are considered embryos, sit in a freezer for many years. Some may be used at a later date by the infertile couple undergoing treatment, while others may be donated to other infertile couples. Still, many embryos sit in freezers until one day they are destroyed by incineration, either because the couple no longer needs them or because they can no longer afford to pay for storage of these embryos.”

Sandy sat up straighter as she pondered the information. “So basically the embryos you will use would most likely be destroyed if you don’t use them?”

“That is correct, Mrs. Allison. The embryos we use are donated by couples that no longer have a need for them.”

“But the embryos will still be destroyed once you take the stem cells from them, right?” Sandy wanted to make sure she wasn’t missing any information about this procedure.

“Once again, you are correct. They will die as a result of the procedure. However, given that they would have died anyway, we like to think that these embryos may serve to save or change someone’s life. For example, the embryos we would use to treat your son Jim may give him or others like him the ability to walk,” Dr. Gupta concluded.

“I see what you mean...this is a lot to consider. It’s comforting to know that these cells are not from aborted embryos, or from embryos that might have otherwise lived a full life.” With that, Sandy thanked the doctor and walked back to Jim’s hospital room.

Questions

1. If you were Sandy Allison, would you want your son Jim to undergo the embryonic stem cell treatment? Why or why not?
2. State two reasons for and against undergoing the stem cell treatment.



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