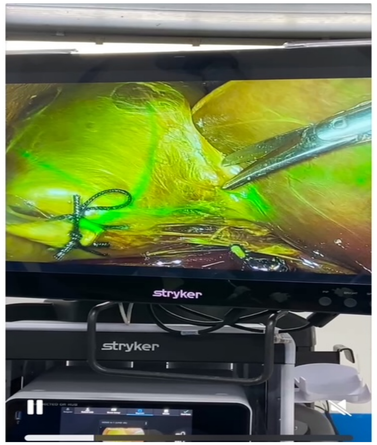
Superiority of Cadaveric Models with Fluorescence in Surgical Training: An Innovative Approach to Advanced Medical Education in Colombia.

Evelyn Dorado A. MD FACS FASMBS . Javeriana University Cali Colombia

Introduction

Effective surgical training requires methods that accurately replicate human body conditions. This study compares the efficacy of human cadaveric models versus animal models in surgical education, utilizing advanced fluorescence techniques. The use of cadavers eliminates ethical concerns associated with animal experimentation, aligning with current trends in medical research. The integration of fluorescence in these models significantly enhances the identification of critical structures, reducing the risk of errors in real practice.







Metods and Procedures

This descriptive study was conducted on 3 fresh frozen cadavers, evaluating the viability of micro and macrostructure assessment with ICG using a reperfusion system.
A cadaver is maintained at a specific temperature. The carotid vein is cannulated, and a perfusion of 1 liter of water + 1 ampoule of ICG and 5 sachets of 90% collagen is administered to facilitate fluorescein transport.
A suprapubic incision is made for the passage of a 12 mm trocar and a 5 mm trocar on the right side. With pneumoperitoneum at 15 mm Hg, capillary perfusion in the subcutaneous tissue is observed. An umbilical approach is then made with a 12 mm port and two 5 mm paraumbilical ports, allowing visualization of perfusion in the left gastric artery, intestine, and gallbladder with ICG.

Results

In a practice session involving 2 cadavers over a 3-hour period, structures were visualized using ICG without alterations. The model was used for practice in advanced abdominal wall reconstruction and gastrointestinal surgery.

Conclusion

The results demonstrate the superiority of cadaveric models in several key aspects:
Precise human anatomy allows for direct skill transfer to the operating room.
The application of fluorescence in human tissues offers a more realistic visualization of vascular and lymphatic structures, crucial for microsurgical procedures.
Cadaveric models present natural anatomical variations, better preparing surgeons for diverse clinical scenarios.
This approach not only improves the learning curve for surgeons in training but also allows for the practice of advanced surgical techniques in a controlled and ethically sound environment. Widespread adoption of this method could revolutionize surgical education, ultimately improving patient safety and outcomes.