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A consolidated network to procure fresh liver tissue for hepatocytes isolation: Spanish experience

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Introduction: The human hepatocytes *in vitro* model are the gold standard regarding a wide range of applications in biomedical research such as biological, pharmacological and toxicological studies. Researchers face many ethical and legal challenges in this area, and also sourcing high quality, fully characterized specimens able for use in bioanalytical processes.

Objectives: Aim of this study is to provide fresh human hepatic tissue fully characterized with high quality and viability criteria for hepatocytes isolation for research purposes.

Materials & Methods: The tissue was procured from patients undergoing planned liver resection surgeries due to primary or secondary tumors (living donors). The program required the involvement of health professionals in donor detection, tissue retrieval and evaluation, tissue perfusion and isolation. Hepatocytes isolation was conducted through the two-step collagenase perfusion technique and the established in-house methods. Cell viability and yield production were assessed and linked to donor clinical information. The program follows the European legislation to ensure quality, safety and traceability of all the procedures.

Results: The program linked eight procurement centers. A total of 222 donation offers were reported and evaluated; 116 donations have been isolated under a cold ischemia time of 8 hours. The 86.66% of the isolated tissues produced viability >80% and an average of 16.49 million of hepatocytes/gram were obtained.

Conclusions: Thanks to a consolidated hospital network for providing fresh tissue for research with high quality and viability criteria. As a result of the program, studies of the influence of donors' pre-, intra- and post-operative parameters have been performed.

Biography

Arredondo E (BS, MSc, TPM) is a Biologist specialized in Organ, Tissues and Cell Donation from the University of Barcelona. He has participated in the implementation of liver tissue for hepatocytes isolation and SELICA clinical trials. He is currently responsible for the tissue at Research Department of DTI Foundation. His studies are based on how to develop networks to procure human tissue for research. He has been involved in several European projects related to organ donation such as the BSA project sponsored by the Council of Europe.

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