



Part 1 examination

Clinical Embryology: First paper

Tuesday 23rd March 2010

Candidates must answer FOUR questions ONLY

Time allowed: 3 hours

- 1) List the major risks to babies born from IVF or ICSI treatment. Using two examples, explain the evidence for these risks. Explain whether the risk has been identified from either human or animal research.

- 2) Draw a diagram of a normal spermatozoon, annotating the features that are important in sperm morphology assessment according to the World Health Organisation criteria. Explain the potential relevance of sperm morphology for fertilisation by IVF or ICSI. Describe five commonly observed abnormalities of sperm morphology, and briefly outline their origin or importance.

- 3) The Human Fertilisation and Embryology Act 2008 and amendments of the 1990 Act were implemented in October 2009. Explain the important changes from the original 1990 Act, and provide detail for two of the changes.

Please turn over for Questions 4 & 5

- 4) Compare and contrast early cleavage embryo transfer (day 2 or 3) and blastocyst culture and transfer. Explain in which situations the latter might be an appropriate strategy. Discuss any possible risks which would need to be taken into account and/or explained to patients.

- 5) Describe the major components of culture medium used to support embryo development to day 2 or 3. For two of the components, describe their function in detail including the approximate optimal concentration at which they are found in medium.



Part 1 examination

Clinical Embryology: First paper

Tuesday 24 March 2009

Candidates must answer FOUR questions ONLY

Time allowed: 3 hours

1. Who can consent to gamete and embryo storage? In your answer, discuss the following:
 - a) the particular implications for gamete storage in minors.
 - b) issues relating to gamete and embryo donation, with reference to the point up to which consent may be withdrawn.
 - c) issues arising when one partner withdraws consent to embryo storage.

2. Discuss the possible approaches to minimising the occurrence of multiple pregnancies after in vitro fertilisation treatment.

3. Describe the process and timing of meiosis in human oocytes, including the composition of the polar bodies. Explain the pros and cons of polar body biopsy for pre-implantation genetic diagnosis.

Please turn over for Questions 4 & 5

4. Write a table to compare and contrast 'slow freezing' and 'vitrification'. Discuss the principles and uses of these two methods in clinical embryology.

5. List the major risks that need to be managed in an IVF laboratory. Discuss two of these in detail, explaining the strategies adopted to minimise the risk.



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The Royal College of Pathologists

Part 1 examination

Clinical Embryology: First paper

Tuesday 18 March 2008

Candidates must answer FOUR questions ONLY

Time allowed: 3 hours

1. What is meant by the term 'hypothalamo-pituitary-ovarian axis'? Explain how it is manipulated to induce ovarian stimulation. Include a diagram to show the hormonal feedback mechanisms.
2. Explain the key elements of an effective quality assurance programme in the context of a clinical IVF laboratory.
3. Discuss the significance of the following visible features when selecting embryos for transfer at the cleavage stage, and explain their likely biological origins:
 - (i) slow cleavage
 - (ii) fragmentation
 - (iii) irregular sized cells
 - (iv) thick zona pellucida
4. 'The children born by assisted conception are normal.' Discuss this statement in the light of evidence for and against. Include an explanation of the most significant risks for children arising from assisted conception.

Please turn over for question 5

5. Explain the importance of the different elements of a diagnostic semen analysis. Include reference to standard criteria cited by the World Health Organisation.