HFEA Statutory Approvals Committee

25 July 2013

Finsbury Tower, 103-105 Bunhill Row, London, EC1Y 8HF

Minutes – Item 2

Centre 0119 (Birmingham Women's Hospital) – PGD application for Mucopolysaccharidosis Type I (MPS I) OMIM #607014, #607015, #607016

Members of the Committee:	Committee Secretary:
David Archard (lay) Chair	Lauren Crawford
Sue Price (professional)	
Rebekah Dundas (lay) (teleconference)	Legal Adviser:
Jane Dibblin (lay)	Tom Rider, Field Fisher Waterhouse
Hossam Abdalla (professional)	

Declarations of Interest: Members of the Committee declared that they had no conflicts of interest in relation to this item.

The following papers were considered by the Committee

- Executive Summary
- PGD Application Form
- Joint Statement by:
    1. Genetic Alliance UK
    2. The MPS Society (The Society for Mucopolysaccharide Diseases)
- Licence Committee minutes of similar conditions previously considered:
    1. Sanfilippo or Mucopolysaccharidosis Type III A #252900
    2. Mucopolysaccharidosis III (MPS-III) Type B #252920
    3. Mucopolysaccharidosis III (MPS-III) Type C #252940
    4. Mucopolysaccharidosis III (MPS-III) Type D #252930
    5. Mucopolysaccharidosis type VI #253200

The Committee also had before it

- HFEA Protocol for the Conduct of Licence Committee Meetings and Hearings
- 8th edition of the HFEA Code of Practice
- Human Fertilisation and Embryology Act 1990 (as amended)
- Decision trees for granting and renewing licences and considering requests to vary a licence (including the PGD decision tree); and
- Guidance for members of Authority and Committees on the handling of conflicts of interest approved by the Authority on 21 January 2009.
- Guidance on periods for which new or renewed licences should be granted
- Standing Orders and Instrument of Delegation
- Indicative Sanctions Guidance
- HFEA Directions 0000 – 0012
- Guide to Licensing
- Compliance and Enforcement Policy
- Policy on Publication of Authority and Committee Papers
- HFEA Pre-Implantation Diagnostic Testing ("PGD") Explanatory Note For Licence Committee

Discussion

1. The Committee had regard to its Decision Tree. The Committee noted that the Centre is licensed to carry out PGD. The Committee was also satisfied that the Centre has experience of carrying out PGD and that generic patient information about its PGD programme and associated consent forms had previously been received by the HFEA.

2. The Committee noted that the Centre's proposed purpose of testing the embryos was as set out in paragraph 1ZA(1)(b) of schedule 2 of the Act, ie. 'where there is a particular risk that the embryo may have any gene, chromosome or mitochondrion abnormality, establishing whether it has that abnormality or any other gene, chromosome or mitochondrion abnormality'.

3. The Committee noted that Mucopolysaccharidosis Type I (MPS I) OMIM #607014, #607015, #607016, is a lysosomal storage disorder inherited in an autosomal recessive pattern. There is therefore a 1 in 4 chance of the embryo being affected by this condition if both parents are unaffected carriers.

4. The Committee noted that MPS I is caused by one or more mutations in the gene coding for the enzyme alpha-L-iduronidase (IDUA). The condition has varying penetrance depending upon the exact IDUA gene mutation. It usually cannot be determined whether a certain mutation will cause severe or attenuated MPS I.

5. The Committee noted that there is a wide spectrum of severity of MPS I, which has traditionally been divided into three forms:

    - Hurler disease (MPS IH), the severe form (OMIM #607014)
    - Hurler Scheie disease (MPS IHS), the middle of the spectrum (OMIM #607015)
    - Scheie disease (MPS IS), the milder (attenuated) form (OMIM #607016)

6. The Committee noted that children with MPS I often have no signs or symptoms of the condition at birth but in severe cases they begin to show signs and symptoms within the first year of life, whilst those with the milder form have milder features that develop later in childhood. Symptoms include decline in intellectual function, heart disease, breathing difficulties, visual impairment, deafness and physical disability. Heart disease and airway obstruction are the major causes of death in people with MPS I. Children with MPS IH rarely live beyond 10-12 years.

7. The Committee noted that there are treatments are available, including:

    Haematopoietic stem cell transplant (HSCT): this treatment was introduced in 1980 as a potential treatment for MPS IH. Treatment has been shown to modify MPS IH and preserve a level of cognitive functioning. However, HSCT does not address the progressive musculo-skeletal disease, heart valve involvement, hearing and corneal clouding.

    Enzyme Replacement Therapy: It is possible to treat MPS IS and MPS IHS with enzyme replacement therapy (ERT). ERT requires weekly enzyme intravenous infusions and requires a lifelong commitment. Some patients suffer adverse reactions particularly in the early months of starting ERT. However ERT is unable to alleviate neurological symptoms so is not appropriate long term for MPS IH patients.

8. The Committee noted that it usually cannot be determined whether a certain mutation will cause severe or attenuated MPS.

9. The Committee considered that the condition is serious because in its severest form children with MPS IH rarely live beyond 10-12 years.

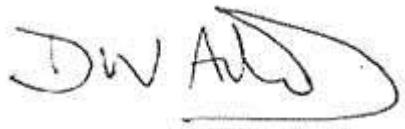
10. The Committee noted that the application is supported jointly by the Genetic Alliance UK and the Society for Mucopolysaccharide Diseases.

11. The Committee had regard to its explanatory note and noted that on the basis of the information presented, given the condition's worst symptoms, it was satisfied that there is a significant risk that a person with the abnormality will

have or develop a serious physical or mental disability, a serious illness or any other serious medical condition. The Committee was therefore satisfied that the condition meets the criteria for testing under paragraph 1ZA(1)(b) of Schedule 2 to the Act.

12. The Committee agreed to authorise the testing of embryos for Mucopolysaccharidosis Type I (MPS I) OMIM #607014, #607015 and #607016. The Committee confirmed that this condition will be added to the published list of condition for which PGD may be carried out.

Signed: Date: 30/07/2013



David Archard (Chair)