New topic referral exploratory work

High level scope: Face transplantation

Brief background: Facial transplantation is a recent surgical procedure, first carried out in 2005 in France\(^1\). A face transplant (partial or full) is performed in a single operation, rather than a series of operations, as in conventional facial reconstruction. The indications for transplantation to date have been: traumatic injury (including animal bites, shotgun blasts, burns and falls), neurofibromatosis and deformity after tumour resection. A 2012 paper\(^2\) stated that 27 facial transplants have been reported worldwide.

Available literature: A systematic search of the primary and secondary literature was carried out between 10 July 2014 and 14 July 2014 using the following databases: Medline, Medline in process, Embase, Cinahl and Web of Science. Results were limited to English language. Key websites were searched for guidelines, policy documents, clinical summaries and economic studies. Concepts used in all searches included: face transplant and facial transplantation. Two hundred and thirty seven references were found. The large majority of these were discussion papers on the risks and benefits of the procedure.

Relevant literature consisted of 10 case reports\(^3\)-\(^5\), \(^6\)-\(^11\), three case series (n=3,5,3 cases\(^12\),\(^13\),\(^14\)), seven reviews of these case studies (the most recent being a 2013 paper\(^2\), which described 27 cases. The other reviews covered 18\(^15\), 21\(^16\), 18\(^17\), 17\(^18\), 13\(^19\) and 7\(^20\) cases) as well as providing discussion of the issues surrounding facial transplants. Single case reports seem to be reported in multiple articles and the reviews of cases appear to contain a large overlap of patients.

There were two cost analyses. A US cost analysis of one patient’s face transplant\(^21\) found that the cost of the face transplant was similar to multiple conventional reconstructions. A second, French cost analysis of five patients undergoing a face transplant\(^22\), found a face transplant led to higher costs than any solid organ and was twice the cost of a liver transplant.

In addition, there were two Working Party reports from the Royal College of Surgeons, from 2003 and 2006\(^23\),\(^24\) which advised a cautious approach towards this type of surgery.

What are the findings?: Outcomes reported included: regaining movement of underlying structures, appearance of a normal face, psychological outcomes and quality of life.

Among the 27 cases to date, it appears that that there has been satisfactory restoration of function and form. However there was high morbidity (including severe
bleeding, renal insufficiency, acute respiratory distress syndrome and jugular thrombosis in seven transplants carried out in France \textsuperscript{25,26} as well as opportunistic infection, reported as the most serious problem during post-surgery) and two patients have died as a consequence of the transplant (one following non compliance with immunosuppressive treatment and the other from secondary squamous cell carcinoma of the hypopharynx)\textsuperscript{2}.

\textbf{It appears that there is very little evidence for SHTG to consider and therefore it may not be possible to proceed with this topic.}

\textbf{SHTG criteria for assessing topics referred}

The topic referral form seeks to capture information to answer the following screening questions. The answer must be yes to \textbf{at least one} of the following questions:

1. \textbf{Is a clear additional health benefit to patients or benefit to the NHS anticipated or evident from the use of this technology?}
   No, due to the limited evidence (small number of cases) it is not possible to say there is a clear health benefit. However, the limited evidence suggests that outcomes are positive.

2. \textbf{Is there uncertainty about the clinical or cost-effectiveness of the technology?}
   Yes, the literature is limited by the small patient numbers. No cost effectiveness literature was identified although we found two cost analysis studies.

3. \textbf{Is there wide variation in provision or outcome of the technology across Scotland?}
   This type of surgery is not available in Scotland.

4. \textbf{Is the technology likely to have a major impact on NHS resources (consuming or releasing)?}
   Yes.

Although the numbers of potential patients will be small, a skilled, multidisciplinary team is required and, post surgery the patient will need psychological support and lifelong immunosuppressant treatment.

A French cost analysis of five patients undergoing a face transplant\textsuperscript{22}, found a face transplant led to higher costs than any solid organ and was twice the cost of a liver transplant.

A second, US cost analysis of one patient’s face transplant found that the cost of the face transplant was similar to multiple conventional reconstructions\textsuperscript{21}. Overall costs have ranged from \texteuro{}102,227 to \texteuro{}170,071 (\textsterling{}80,934 to \textsterling{}130,646 on 19/7/2014)\textsuperscript{2}.
In addition the answer must be yes to all of the following questions:

1. **Is the technology likely to have a major impact on NHSScotland?**
   No due to limited patient numbers.

2. **Is there potential for quality improvement from undertaking an assessment of this technology at this time?**
   No, there is too little evidence to warrant assessment.

3. **Is it likely that one or more focussed technology assessment questions can be prepared?**
   Yes.

4. **Are there likely to be sufficient published research findings available upon which to base a technology assessment?**
   No. As it is still an experimental procedure, the patient numbers are low with 27 cases being recorded².

5. **The technology should have a CE mark or appropriate regulatory approval or except to have this by the time the SHTG evidence review is complete.**
   N/A – not a product.

**References**


