The Manchester Rainbow Clinic, A Dedicated Clinical Services for Parents who have Experienced a Previous Stillbirth Improves Outcomes in Subsequent Pregnancies

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Introduction

- Women who have had a stillbirth are at increased risk of complications in subsequent pregnancies including stillbirth (Odds Ratio (OR) 4.8), pre-eclampsia (OR 3.1), placental abruption (OR 9.4), low birthweight (OR 2.8).
- Embarking upon a subsequent pregnancy is also associated with increased psychological, emotional and social challenges.
- Optimal care in pregnancies subsequent to stillbirth was identified as a priority for stillbirth research.
- To address parents’ needs a dedicated clinical service, the Rainbow Clinic, was established which combines regular appointments, therapies for specific indications, maintaining continuity of carer and identification of case notes.

Methods

- We reviewed case notes from women attending the Rainbow Clinic to describe demographic characteristics and the number of visits.
- We conducted a retrospective case control study by reviewing the clinical outcomes for women with a history of stillbirth prior to the establishment of Rainbow Clinic (n=94) and for women who attended Rainbow Clinic (n=86).
- Parent and staff experience was quantified using a specifically designed questionnaire and the impact of Rainbow Clinic quantified using Social Return on Investment methodology.

Rainbow Clinic – Plan of Care

- Booking Appointment
- Placental Profile 23 weeks
- Growth + Doppler scans 26+ weeks
- Review History
- Anomaly Scan
- Awareness of FMs + Support
- Appropriate Intervention
- Placental Profile 17 weeks
- Plan birth

Results

- 70 women attending the Rainbow Clinic had a history of one stillbirth (81%), 6 women had two or more stillbirths (7%), 6 women had a history of late second trimester loss (7%), 4 women had a history of a neonatal death (5%).
- Women attending Rainbow Clinic ranged from 19-42 years. The majority were White British (55%), there was a significant proportion of women from Black African (20%), Black Caribbean (6%), White European (6%) and Pakistani (8%) ethnic groups.
- Women had an average of 5 appointments in the Rainbow Clinic (Range 1-10).
- 61% were prescribed aspirin and 12% received low molecular weight heparin for proven thrombophilia / antiphospholipid syndrome.
- All pregnancies ended in live births. Thirty-nine women had elective induction of labour (45%) and 14 were delivered by elective Caesarean section (16%).
- Clinical outcomes were improved following the establishment of Rainbow Clinic (see Table). Statistically significant reductions were seen in preterm birth (10% vs 21%; p=0.006) and low birthweight infants (9% vs. 18%; p=0.04).
- There was a reduction in NICU admission (9% vs. 14%) and subsequent stillbirth (0% vs 2%), but this failed to reach statistical significance.

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Prior Care n (%)</th>
<th>Rainbow Clinic n (%)</th>
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</thead>
<tbody>
<tr>
<td>Preterm Birth (&lt;37w)</td>
<td>20 (21)</td>
<td>8 (10)</td>
</tr>
<tr>
<td>Low birthweight (&lt;2500g)</td>
<td>17 (18)</td>
<td>8 (9)</td>
</tr>
<tr>
<td>SGA (&lt;10th centile)</td>
<td>11 (12)</td>
<td>9 (10)</td>
</tr>
<tr>
<td>Planned Caesarean Section</td>
<td>16 (17)</td>
<td>15 (17)</td>
</tr>
<tr>
<td>NICU admission</td>
<td>13 (14)</td>
<td>8 (9)</td>
</tr>
</tbody>
</table>

- For every £1 invested in Rainbow Clinic, £1.86 of value was derived for parents and staff. This included improved education for staff and reduced psychological morbidity for parents.

Discussion and Future Work

- A specialist clinical service for women with previous stillbirth improves clinical outcome and parents’ experience.
- Further research is required to determine whether outcome is determined by the cause of stillbirth and which investigations in a subsequent pregnancy predict adverse outcome.

References
1. Lamont et al. BMJ. 2015;350:h3080
2. Black et al. BJOG. 2008;115(2):269-74