Innovative approaches for interconception and subsequent pregnancy care after stillbirth

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I. Introduction
   a. Problem
      i. Each year in the U.S. more than 26,000 pregnancies end in stillbirth (uterine fetal death at ≥ 20 weeks gestation)
      ii. Traumatic experience that may cause symptoms of Post-traumatic Stress (i.e. hyperarousal, thoughts of suicide, experiential avoidance, sadness, anxiety, stress, and guilt)
   b. PTSD
      i. Symptoms may contribute to several psychological and physical ailments in the mother (e.g. inability to regulate emotions, poor sleep quality, increased risk of chronic disease, premature mortality, etc) and subsequent children (e.g. cognitive delays)
      ii. PTSD after a stillbirth can last 5-18 years
   c. PTSD and subsequent pregnancy
      i. Within 12-18 months, 50-85% conceive another child
         1. Medically at high risk
         2. Psychologically vulnerable
      ii. Symptoms elevated in subsequent pregnancies
   d. Interconception health
      i. Interventions in the interconception period are necessary to reduce risks and prevent or minimize health problems for the mother and her future children
      ii. See Morbidity and Mortality Weekly Report (MMWR) for Preconception Health and Healthcare Initiative Goals from 2006 to 2012
   e. Current knowledge
      i. Health care provider practices based upon cross-sectional studies
         1. Have identified etiological factors associated with stillbirth for guidance
         2. Few guidelines exist
            a. ACOG has no guidelines for care for interconception or subsequent pregnancy period
            b. Other guidelines focused on the time in the hospital, not long-term
      ii. Meaningful care after stillbirth
         1. Qualitative synthesis- 20 studies
         2. Nothing related to the long-term care for PTSD and grief
   f. Informal focus groups (unpublished data, 2016)
      i. Recommendations for moms are individually based
      ii. Subsequent pregnancy care
      iii. Frequent visits- closer monitoring
iv. Don’t make patient wait in the waiting room
g. Current knowledge cont.
i. Qualitative studies
   1. Survey of 105 women with unexplained stillbirth
   2. Very little empirical evidence
h. “Treatment” for bereaved mothers
   i. Return to follow-up check-up
   ii. Referral to support groups/counseling
   iii. Psychiatric medication
      1. Cross-sectional data 235 parents participating in online support community
      2. Women exposed to psychiatric medication during pregnancy 2x more likely to have stillbirth than women unexposed
II. Need for interventions for women after stillbirth
   a. When a Baby Dies: A Systematic Review of Experimental Interventions for Women after Stillbirth (Huberty et al., in press)
      i. 1771 records screened
      ii. Only 2 interventions
   b. Latest suggestions
      i. Systematic review to understand and improve care after stillbirth: a review of parents’ and healthcare professionals’ experiences
         1. Multi-disciplinary health care professional training to improve “after care”
         2. Need for intervention about how to best cope with psychological and physiological effects of a stillbirth
      ii. From grief, guilt pain and stigma to hope and pride- a systematic review and meta-analysis of mixed-method research of the psychosocial impact of stillbirth
         1. Negative psychological effects extend into subsequent pregnancy
         2. Exercise mentioned as a form of therapy or means of coping
c. Beliefs about physical activity after stillbirth
   i. Barriers- emotional symptoms, lack of motivation, tired, guilt, seeing other babies, pregnant body
   ii. Benefits- feel better mentally/emotionally, cope
   iii. Importance- grief, time for self
   iv. Motivators- more children, body shape/weight, role model, already exercising
d. Physical activity and depressive symptoms after stillbirth
   i. 175 women (stillbirth within 12-mos) completed a survey
   ii. Meeting guidelines for physical activity: before (60%), during (47%), after stillbirth (61%)
   iii. 88% reported depression
   iv. Women who participated in physical activity after stillbirth- significantly lower depressive symptoms (M = 15.10, SD = 5.32) compared to women who did not participate in physical activity (M = 18.06, SD = 5.57; p=.001)
III. What is the best intervention approach?
a. Yoga
i. Combines physical practice with meditative component
ii. Yoga is efficacious, safe, acceptable for improving mental health in pregnant and post-partum women

b. Innovation: Online Yoga
   i. Anonymity
      1. Important for mothers after stillbirth who don’t want to see others with babies or explain what happened
      2. Preference for home-based activity
   ii. Leveraging an already exiting platform (i.e. Udaya.com)

c. Beta test
   i. Examine the feasibility and acceptability of a 12-week, home-based, online-streamed yoga intervention among women who had experienced stillbirth
   ii. Ascertain preliminary effects of intervention on PTSD symptoms
   iii. Recruitment/Eligibility
      1. Women were recruited nationally
      2. Inclusion Criteria
         a. Women who experienced stillbirth (≥20 wks gestation) within past 24 mos
         b. ≥18 yrs of age
         c. Residing in U.S.
         d. Able to read/understand English
         e. Answer “no” to all items on PA Readiness Questionnaire
      3. Exclusion Criteria
         a. Practicing yoga at least 60 mins/wk
         b. At risk for suicide
         c. Currently taking psychosocial medications

d. Intervention details

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<tr>
<th>Baseline</th>
<th>Weeks 1-3</th>
<th>Week 4-12</th>
<th>Post</th>
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<tbody>
<tr>
<td>Self-report PTSD</td>
<td>Safety</td>
<td>Self-report PTSD</td>
<td>1-2 new videos/week</td>
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<tr>
<td></td>
<td>Intro to poses</td>
<td>1-2 new videos/week</td>
<td>Satisfaction survey</td>
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<td></td>
<td>Modifications</td>
<td>Full-length videos</td>
<td>Interviews</td>
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<td>Short Videos</td>
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e. What did we learn from our beta test?
   i. Average yoga minutes = 31
   ii. Dropouts high in those that became pregnant during the study
   iii. Women felt better emotionally
   iv. Promising for PTSD

f. NIH Specific Aims
   i. Feasibility of low (60 mins/wk) and high (150 mins/wk) doses
   ii. Evidence-based control croup
   iii. Preliminary effects on PTSD

g. Conceptual Model
h. Study phases
   i. Phase 1
      1. Iterative design
         a. Identify existing videos
         b. Panel to view the videos
      2. Interviews with racial/ethnic minority women
   ii. Phase 2
      1. Randomization to intervention or control group(s)
         a. Yoga
            i. 60 min per week
            ii. 150 min per week
         b. Control
            i. Stretching, toning, limbering

IV. Suggestions for future intervention work
   a. Future of intervention research
      i. Protocols/Policy
      ii. Managing PTSD/stress in subsequent pregnancy
      iii. Training for physicians needed
      iv. Appropriate support and efficacious delivery of support interventions
      v. Feasibility and effectiveness of physical activity interventions
      vi. Appropriate timing and dose of interventions
      vii. Culturally sensitive interventions appropriate for racial/ethnic minority women who have experienced stillbirth

V. References (others may have been added)


