NATIONAL CURRICULUM IN REPRODUCTIVE PSYCHIATRY

Infertility and Perinatal Loss

Media Conference

Stress and Infertility

Facilitator Guide

Contributors

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Learning Objectives

By the end of this module, trainees will:

1) Demonstrate the ability to analyze issues related to stress and infertility as portrayed in the lay media
2) Be able to locate and interpret relevant scientific literature as it relates to issues raised in the media
3) Be able to communicate accurately and thoughtfully with a lay audience regarding issues surrounding stress and infertility

Overview

With the ubiquity of digital and portable technology, women are exposed every day to stressors via social media. This, in addition to personal stressors, may exacerbate comorbidities such as depression and anxiety. As a trainee, it is necessary to develop the ability to address patient questions that will inevitably emerge from exposure to social media, mass media, and popular culture. A physician should be able to sift through all of this information to evaluate and present only empirically supported claims. Specifically, trainees should be able to interpret and convey data and statistics presented in lay media in an accurate and clinically relevant manner. Thus, the Perinatal Loss and Infertility Media Module aims to provide trainees with communication skills that will enable them to serve as knowledgeable and thoughtful representatives of reproductive psychiatry.

This section consists of three parts: 1) review of two videos from the popular media; 2) appraisal of the medical literature; and 3) role-playing a psychiatrist/patient interaction about how to communicate this topic to a lay audience.

The aim of reviewing the medical literature is to compare its findings with the information portrayed in the media. For this exercise, the most relevant parts of medical literature are the abstract, the introduction, and the discussion. The aim is not to have an in-depth analysis of the article (an essential skill for residents to master elsewhere in their training) but

rather to delineate in broad strokes the gaps between the information presented by the media portrayal and the medical literature.

The media conference is tailored for PGY-4 psychiatry residents but can be modified for any resident trainee group. A small group setting with time and space to work within break-out groups is recommended. After reviewing the media items and the medical literature, the residents will divide into pairs to role-play the clinical interaction.

Resources required

1) A faculty moderator
2) Copies of samples from media and relevant articles (provided)
3) Copies of Trainee Guide (provided)
4) Computer (with internet access) and projector

Structure of the session

1) Review of media items (15 minutes): Faculty and residents together will review the media items
2) Review of medical literature (15 minutes): Faculty and residents together will discuss the literature and its portrayal in the media pieces
3) Role-play with case example (15 minutes): Pairs of residents will role-play a psychiatrist/patient discussion
4) Large group discussion (10 minutes)
5) Wrap-up and Q+A (5 minutes)

Presentation of Media Items

ABC Action News (2014)
https://www.youtube.com/watch?v=ufBcFvUKXZc

Fox7 Austin, TX (2014)
https://www.youtube.com/watch?v=6vtPeiHhZ88

Critique of Media Coverage

1) What are these media pieces' central claims, and how do they differ?

Facilitator elicits the following:

- Stress may result in a decrease in fertility and a longer time to pregnancy.
- The Fox7 interview identifies other factors that could affect fertility: problems with ovulation, problems with tubal functioning, uterine problems, or problems with sperm.
- Both interviews suggest that reducing stress through yoga and meditation may aid conception.

2) How do these media pieces influence (and potentially bias) the lay reader?

Facilitator elicits the following:

- The term "infertility" in the scientific context generally refers to the spectrum of fertility, but to the general public, this can be interpreted as being "infertile" or the complete inability to have children.
- A person in the general public may believe that stress is the sole cause of their infertility and may not seek other options for evaluation or treatment.
- A lay reader may consider that infertility is somehow the "fault" of the woman/couple.

3) What questions do you imagine a patient who is considering pregnancy might ask after viewing these media pieces?

Facilitator elicits the following:

- What is the difference between infertility and being infertile?
- What amount of time you have to have trouble conceiving to be considered infertile?
- Should I seek alternatives for conceiving?
- Is there something wrong with me or my body that is making it difficult to conceive?
- What can I be doing to reduce my stress levels?
- If I reduce my stress, will I get pregnant faster?

Appraisal of Scientific Literature

Lynch et al. (2014)
https://www.ncbi.nlm.nih.gov/pubmed/?term=infertility+and+stress+AND+2014+AND+amylase

1) What is the study design? What "level" would this study design be? What are the strengths and limitations of this study design?

Facilitator elicits the following:

- This is a prospective cohort study. There is no assigned control group. Instead, the researchers observed participants over a selected period of time to observe outcomes in a natural setting and take measurements of interest.
- It is a Level 2a study. Level 1 is a randomized control trial. The vast majority of perinatal studies are Level 2 or lower as it is deemed unethical to randomize pregnant women into treatment arms.

Strengths:

- A large number of participants (n = 401 completers) helps with statistical power to observe differences between groups.
- Participants were recruited from two different sites, which adds to the diversity of the participant population and generalizability.
- Biobehavioral markers of stress utilized: Alpha-amylase and cortisol. Both have literature supporting an association with stress (see references below and within the paper).
- Stated hypothesis in the abstract.

Weaknesses:

- Lack of administered scales measuring subjective stress alongside sampling.
- Lack of repeated biological marker assays.
- Not able to control for parity.
- Table 2: Significant differences in "average acts of intercourse during fertile window" (as indicated by two small asterisks) during the fertile window between groups do not appear to be controlled for in adjusted models. The authors report no differences in frequency of intercourse.
- Other potential pathways that influence changes in cortisol and alpha-amylase, which are the proxy for stress here (e.g., alpha-amylase is increased by eating,

smoking, etc.). While the authors control for these, not known if additional mechanisms (potentially unrelated to stress) are acting in this pathway.

- The authors did not find a correlation between salivary cortisol and fecundity; cortisol is the most well-established proxy for stress.
- Stress is used very generally in paper. Specifically, the study's authors were unable to evaluate whether the stress of not getting pregnant influenced the results.

2) What are the pros and cons of using salivary alpha-amylase as a biological marker for stress?

Facilitator elicits the following:

- **Pros include:** the use of an indirect biomarker of norepinephrine production, ease of collection, and mounting evidence that it is a sensitive biomarker for stress response.
- **Cons include:** diurnal variation throughout the day, affected by other unknown, intrinsic and extrinsic factors (smoking, alcohol, diet, etc.).

3) What is the primary conclusion of this study? Do the findings support the hypothesis? What are the clinical implications?

Facilitator elicits the following:

- The study concluded that increased salivary alpha-amylase is associated with a longer time to pregnancy and perhaps infertility. The study does not implicate causation of infertility.
- No, the hypothesis was "stress levels," and there was no information about this type of data in the paper. The research team collected data on biomarkers of stress, which did support the hypothesis.
- Clinical interpretations and advice about acute stress should be delivered with caution. It is not known whether the elevated baseline salivary alpha-amylase represented an acute or chronic stress state. The study is unclear on what salivary alpha-amylase is measuring as well as the proximity of the stressor. In fact, the elevated salivary alpha-amylase may represent a distal stressor and subsequent baseline physiological change that is out of the patient's control at present.
- Additional measures of stress, including subjective reporting, would have been helpful.

Role-playing Exercise:

Trainees should separate into groups of two, with one trainee playing the role of psychiatrist and one playing the role of patient.

Sample Clinical Case:

Kristin L. is a 37-year-old married G0P0 woman who works as an EMT with a history of depression. She previously consulted with you for a preconception counseling appointment regarding concerns about taking antidepressants during pregnancy. During the prior visit, she relayed the following history:

Kristin experienced her first episode of depression when she was 17 years old. At the time, she was under a great deal of pressure preparing for college applications, and she started isolating herself. Over the course of three months, her mood declined, and she isolated to the point that she remained in bed, could not complete high school, neglected self-care, lost 20 lbs, and experienced almost daily passive death wish (PDW). This episode resolved when she saw her primary care physician, who prescribed citalopram (titrated to 40 mg daily). She remained on citalopram with complete remission of symptoms through her early 30s. At this time, she was engaged to her prior fiancé, and they elected to start trying for pregnancy. She consulted her physician, who recommended tapering citalopram over the course of three months. After four months, Kristin experienced a relapse of depression; she again was not able to work, lost 15 lbs over the course of a month, broke up with her fiancé, and started experiencing increasingly severe PDW and suicidal ideation. She self-presented to her local ED and was psychiatrically hospitalized for one week, during which they started her on sertraline. She has continued on sertraline 150 mg daily through the present day.

Her family history is notable for a mother with recurrent major depressive disorder, which has responded well to fluoxetine 60 mg daily. Her mother did not receive treatment for her symptoms until her mids-30s, after she was hospitalized following an episode of postpartum depression after the birth of the patient's younger sister. During this episode of PPD, she attempted suicide by overdose and was started on paroxetine, which she continued until her 50s. The patient's younger sister also has a history of anxiety and depression but refuses to take medications.

During your first consultation with the patient, you recommended, and she agreed, that given her history of recurrent, severe MDD she would remain on her sertraline during pregnancy. She returns now, however, because she and her husband (Bill) have been trying to conceive for the past eight months without success. She called to schedule the appointment after hearing about recent evidence linking stress to infertility. She states, "I feel like my trouble getting pregnant is my fault. My mood is better, but my job is stressful. I think I would feel even more stressed if I quit my job and had financial problems, though. It makes me feel like I should have chosen a different line of work. If my work stress is going to prevent me from getting pregnant,

it's not worth it!" During the exam, she denies any symptoms consistent with depression. She is thriving in her job and marriage ,and recently started a knitting group called "Knits and Giggles."

The patient then asks a series of questions:

1) I read this paper using a blood test for alpha-amylase to test stress levels. Could that blood test help me to see if this is what is causing my trouble becoming pregnant?

Facilitator elicits the following:

The study uses salivary alpha-amylase as a possible marker for "stress." But this has not been proven yet and is not used in clinics. Also, the term "stress" is broad. It can mean many different things: stressors can be psychological stressors, physical, or even your body's reaction to the illness so, although the study showed that this elevated marker of stress was associated with women struggling to become pregnant. It is unclear why it is elevated or if it measures stress that occurred in the past versus the present. It is also important to note that baseline serum amylase level is unknown.

2) Should I increase my antidepressant dose to reduce my overall stress?

Facilitator elicits the following:

Should emphasize the difference between depression and stress. Stress is a reaction to internal or external challenges that our bodies are made to combat. When one is not depressed but stressed, one should maintain a sense of personal well-being, self-efficacy, and vital sense (energy) outside of the stressful situation. In the patient's case, although her job is stressful, she feels in control of this and, in fact, enjoys aspects of it. There is no evidence that her depressive symptoms have returned and that she is unable to cope with her daily stressors.

3) What recommendations do you have about my case?

Facilitator elicits the following:

It is unlikely that stress is the sole cause of her difficulty conceiving. A reproductive endocrinologist should conduct further evaluation. That said, there is minimal to no risk in engaging in stress-reducing activities, such as knitting (for her), yoga [2-4], and CBT [5,6].

Wrap-up and Q+A

1) **For the learner role-playing the reproductive psychiatrist:** what was challenging about this interaction?

2) **For the learner role-playing the patient:** what was it like to be on the "patient" side of this discussion? Was there anything in particular that your partner did that helped you feel more comfortable in your decision-making?

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