WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.453
Volume 13, Issue 17, 1008-1016. Review Article ISSN 2277–7105

A REVIEW ON AN EVOLUTIONARY BIOLOGY OF CRYPTIC PREGNANCY AND DISCUSS OF ETHICAL AND LEGAL ISSUES

Pabbineedi Keerthana Sri*

*Doctor of Pharmacy, Pratishtha Institute of Pharmaceutical Sciences, Durajpally(V), Chivemla(M), Suryapet(D).

Article Received on
23 July 2024,

Revised on 12 August 2024,
Accepted on 01 Sept. 2024

DOI: 10.20959/wjpr202417-31992

***Corresponding Author**
Dr. Pabbineedi Keerthana Sri
Doctor of Pharmacy,
Pratishtha Institute of Pharmaceutical Sciences,
Durajpally(V),
Chivemla(M), Suryapet(D).

ABSTRACT

This study explores denied pregnancy, introducing the term 'cryptic pregnancy' within an evolutionary framework. Contrary to conventional psychodynamic explanations, it emphasizes the fetus's active biological role and parent-offspring conflicts. Recent studies show a higher incidence (1:475) than believed, manifesting with atypical pregnancy symptoms and often escaping detection. The proposed term reframes the condition, prompting an exploration into physiological correlates and evolutionary implications. Cryptic pregnancy minimizes energetic and ecological costs for the mother, theorized to involve reduced human chorionic gonadotropin (hCG) production or effectiveness. Three evolutionary hypotheses are presented: as a non-adaptive outcome of conflict resolution processes linked to disruptions in genomic imprinting, resulting from spontaneous abortions of low-quality fetuses, or representing 'forced cooperation' in challenging circumstances, maximizing chances of survival until delivery. This abstract critically assesses the phenomenon, acknowledging its link to suboptimal outcomes for both mother and child. The study delves into incidence, characteristics, sub-classification, consequences, and management strategies, addressing ethical and legal considerations. Rejecting psychodynamic interpretations, it challenges traditional theories by recognizing the biological influence of the fetus and parent-offspring conflicts. The term 'cryptic pregnancy' adds depth to understanding, offering potential explanations through evolutionary perspectives. In conclusion, this research contributes to the broader discourse on denied pregnancy, shedding light on its complexity. The proposed term and evolutionary framework offer a fresh perspective, challenging existing paradigms and

paving the way for further exploration. Understanding cryptic pregnancy is crucial for improved detection, management, and support for women experiencing this condition.

KEYWORDS: Cryptic pregnancy, fetus, denied pregnancy, ethical, legal , evolutionary, offspring.

INTRODUCTION

Pregnancy constitutes a profound period of physical and emotional metamorphosis, during which women undergo a transformative adaptation to their impending maternal roles. The gestational interval affords the necessary temporal expanse for women to assimilate the reality of their pregnancy, cultivate a connection with the developing fetus, and meticulously prepare for the impending birthing process. However, for a subset of women, this juncture is fraught with pervasive apprehensions and uncertainties.

In certain instances, the magnitude of these anxieties is so overpowering that women resort to a defense mechanism characterized by the denial of their pregnancy. This maladaptive response can be so potent that the affected woman remains genuinely oblivious to her gravid condition. Consequently, she remains impervious to progressing through the requisite stages of fetal attachment and the preparatory measures essential for impending delivery.

This state of denial not only renders the woman unprepared for the exigencies of childbirth and subsequent motherhood but also poses substantive risks to both maternal and fetal well-being. Consequences may manifest in emotional disturbances, a lack of antenatal care, precipitous deliveries, at times distressingly occurring in unconventional settings such as a toilet bowl, and tragically, even neonaticide. Scholars posit the existence of a spectrum of pregnancy denial behaviours, ranging from covert awareness with concealment to mere suspicion of pregnancy and, at the extreme end, complete and outright denial. Recognizing the nuances within this spectrum is crucial for the formulation of effective interventions to mitigate the associated risks and facilitate a healthier transition to motherhood.

MATERIALS AND METHODS

Pregnancy represents a significant period of emotional and physical transformation for women, marking a profound transition. However, some women struggle to undergo the necessary emotional adaptations, leading to maladaptive coping mechanisms, ranging from depression and substance abuse to outright denial of pregnancy.

Denial of pregnancy is a noteworthy condition, linked to suboptimal outcomes for both the mother and the child. Its critical association with neonaticide, highlighted in recent French cases, has garnered media attention. This study delves into the literature to provide an overview of this significant condition, exploring its incidence and primary characteristics. The examination includes a discussion on its sub classification, consequences, and potential management strategies. Additionally, ethical and legal considerations arising in these situations are explored, acknowledging the complexity and sensitivity surrounding denial of pregnancy and its repercussions. Pregnancy constitutes a profound period of physical and emotional metamorphosis, during which women undergo a transformative adaptation to their impending maternal roles. The gestational interval affords the necessary temporal expanse for women to assimilate the reality of their pregnancy, cultivate a connection with the developing fetus, and meticulously prepare for the impending birthing process. However, for a subset of women, this juncture is fraught with pervasive apprehensions and uncertainties.

In certain instances, the magnitude of these anxieties is so overpowering that women resort to a defense mechanism characterized by the denial of their pregnancy. This maladaptive response can be so potent that the affected woman remains genuinely oblivious to her gravid condition. Consequently, she remains impervious to progressing through the requisite stages of fetal attachment and the preparatory measures essential for impending delivery.

This state of denial not only renders the woman unprepared for the exigencies of childbirth and subsequent motherhood but also poses substantive risks to both maternal and fetal well-being. Consequences may manifest in emotional disturbances, a lack of antenatal care, precipitous deliveries, at times distressingly occurring in unconventional settings such as a toilet bowl, and tragically, even neonaticide. Scholars posit the existence of a spectrum of pregnancy denial behaviors, ranging from covert awareness with concealment to mere suspicion of pregnancy and, at the extreme end, complete and outright denial. Recognizing the nuances within this spectrum is crucial for the formulation of effective interventions to mitigate the associated risks and facilitate a healthier transition to motherhood. Pregnancy is a time of enormous emotional and physical change for women, who undergo a period of great transition. For some, the necessary emotional adaptations are not possible, resulting in maladaptive coping mechanisms. These range from depression and substance abuse through to overt denial of pregnancy. Denial of pregnancy is an important condition, which is associated with suboptimal outcomes for both mother and child. Of prime importance is the

association of this condition with neonaticide. Indeed, pregnancy denial has recently received media coverage following a series of French cases of neonatal killing. We examine the literature to gain an overview of this important condition, including its incidence and main features. We discuss its sub classification, consequences and management. We then discuss some of the ethical and legal issues that may arise in these situations.

DISCUSSION

Case 1 Unexpected Labor in Springfield, MA.

A woman seeks care in Springfield, MA, complaining of abdominal pain, suspecting a storebought sandwich as the cause. She experienced nausea, vomiting, and watery diarrhoea for several hours. No significant medical history or allergies are reported, and pregnancy is denied, though the last menstrual period date is unclear.

The woman rates her pain as severe, >8 out of 10, and is swiftly moved to a room. Suddenly, she begins screaming, prompting immediate staff response. A rapid assessment reveals she is in labor, with the baby's head crowning. Despite the unexpected nature of the situation, the patient discloses a history of two prior pregnancies with vaginal deliveries, both resulting in healthy children.

Within twenty minutes, a healthy baby girl is born. The placenta delivery proceeds smoothly, and both mother and baby are transferred to the labor and delivery unit and nursery department for further management.

Case 2: Unplanned Delivery in California ED

A 35-year-old woman is brought to a California ED by her mother due to abdominal pain, nausea, vomiting, and diarrhoea since the previous night. Despite denying pregnancy, she admits to being gravida 4, para 4. Triage assigns her an Emergency Severity Index level 3. After a 30-minute wait, she begins screaming, and subsequent evaluation reveals she's in labor. Immediate transfer to a suitable room occurs, with L&D and NICU notified.

With rapid resource mobilization, an OB cart and infant warmer are prepared. OB physician and nurse guide the patient, while emergency nurses establish large-bore intravenous lines. An oxytocin drip is readied for post-placenta delivery. After approximately 30 minutes, an episiotomy aids in delivering a 7-lb baby boy, covered in meconium. Though stable,

prolonged placental delivery prompts inquiry, revealing all four previous deliveries were by caesarean section.

Case 3: Emergent Obstetric Situation with Suspected Preeclampsia.

A 22-year-old woman seeks care for back pain, exhibiting uncertainty about her pregnancy status. Lacking prenatal care and unsure of her last menstrual period, she is promptly admitted due to suspected pregnancy beyond 20 weeks' gestation. Immediate notification is made to the OB physician and specialized care team.

As the patient experiences intense pain, contractions 2 to 3 minutes apart are noted. Staff suspects membrane rupture as her underwear is soaked. The OB physician arrives, ordering the administration of a liter of lactated Ringer's solution. A urinary catheter is inserted for analysis of protein and glucose in the obtained urine.

The patient's blood pressure at 150/90 and a heart rate of 130 BPM raise concerns for preeclampsia. Given the separate location of the OB department, ambulance transfer is arranged for the patient's emergent obstetric situation.

This review re-examines previous research on 'denied pregnancy,' where women lack subjective awareness of their pregnancy until late gestation, within an evolutionary biological framework. Recent epidemiological studies reveal a higher incidence (about 1:475) than previously assumed, with diminished pregnancy symptoms and underweight neonates common. Clinical literature attributes this phenomenon to psychodynamic hypotheses, emphasizing somatic denial. I argue that such explanations neglect the active biological role of the fetus and the parent-offspring conflict over resource allocation described in biological theories.

I propose renaming this condition 'cryptic pregnancy' and explore potential physiological correlates and evolutionary significance. Drawing from parent-offspring conflict theory, cryptic pregnancy seems to reduce energetic and ecological costs, favoring the mother over the fetus. Reduced hCG production may be implicated. Three nonexclusive evolutionary hypotheses are suggested: (1) Cryptic pregnancy as a non adaptive outcome of conflict resolution processes, potentially linked to genomic imprinting disruptions. (2) Resulting from missed spontaneous abortions of low-quality fetuses. (3) An adaptive pattern of 'forced cooperation' between mother and fetus under stressful ecological conditions, aligning with

reported associations with elevated psychosocial stress. In scenarios with reduced survival probabilities, both mother and fetus benefit if the mother minimizes pregnancy investment for optimal survival chances until delivery.

Denial of pregnancy presents a dichotomy, classified as either psychotic or nonpsychotic. Individuals with psychotic denial often grapple with chronic mental illnesses like schizophrenia or bipolar disorder, maintaining psychosis throughout pregnancy. Physical symptoms are often attributed to delusional causes, and acknowledgment of pregnancy may oscillate between acceptance and emphatic denial. In contrast, nonpsychotic denial lacks a primary psychotic illness, maintaining intact reality testing and often normalizing post-delivery. Contemporary classification further refines nonpsychotic denial into pervasive, affective, or persistent subtypes. Pervasive denial conceals both emotional and existential awareness of pregnancy, affective denial involves intellectual acknowledgment with limited emotional or physical preparation, and persistent denial manifests when discovery occurs in the third trimester without seeking antenatal care. Incidence studies reveal 36% pervasive denial, 11% persistent denial, and 52% affective denial, with no cases of psychotic denial reported. Calls to include denial of pregnancy as a distinct category in DSM and ICD classifications aim to enhance awareness, research, and facilitate appropriate psychological or psychiatric intervention. The term 'negated pregnancy' is proposed to encompass both denial and concealment, with potential classifications as a complete (denied) or incomplete (concealed) type, further specifying the stage at which acceptance occurs. This nuanced classification framework contributes to a more comprehensive understanding and targeted management of denial of pregnancy.

Navigating Ethical and Juridical Complexities in Instances of Denial of Gestation.

Presentations in the later stages of pregnancy characterized by persistent denial present intricate ethical and legal quandaries for clinicians, encompassing maternal capacity, optimal interests, and the delicate equilibrium between maternal and fetal well-being. The foundational principle presupposing the capacity of all adults for healthcare decisions is underscored, yet concerns may surface when a labouring woman negates her pregnancy, prompting an evaluation of her capacity by a proficient professional. Assessment criteria, including comprehension, retention, and utilization of information in decision-making, are pivotal considerations.

In situations where capacity is compromised, clinicians are ethically bound to act in the paramount interests of the individual. Determining these paramount interests involves contemplating past and present wishes, beliefs, values, and any pertinent written statements made when the individual had capacity. The least restrictive option aligned with benefiting the individual is advocated by legal frameworks, emphasizing patient autonomy.

In critical scenarios necessitating immediate intervention, such as emergency Caesarean sections, the woman's paramount interests may align with the surgical procedure. However, when interventions are advocated for fetal well-being, the balance becomes nuanced, necessitating a multidisciplinary approach involving psychiatrists. In cases where maternal wishes and fetal 'interests' diverge, often termed 'maternalfetal conflict,' effective communication becomes paramount, aiming for a collaborative decision that respects the autonomy of the competent woman.

The issue of enforced detention in hospitals arises, underscoring that lawful detention under the Mental Health Act is exclusively for psychiatric illness investigation and treatment. It cannot authorize treatment for obstetric complications. While denial of pregnancy may warrant admission for psychiatric assessment, obstetric interventions require distinct legal considerations.

In conclusion, managing denial of pregnancy necessitates a delicate and nuanced approach, considering the complex interplay of ethical, legal, and medical dimensions. Effective communication, multidisciplinary collaboration, and respect for individual autonomy are fundamental to navigating these challenging scenarios.

CONCLUSION

The phenomenon of denial of pregnancy encapsulates intricate and multifaceted challenges, necessitating an astute and nuanced approach. This spectrum, spanning from concealed awareness to outright negation, mandates a profound comprehension for efficacious interventions. The attendant jeopardies to both maternal and fetal wellbeing underscore the imperative for judicious and tactful management. The ethical and legal intricacies entwined with late-stage denial accentuate the need for meticulous deliberation, with a focus on individual autonomy, capacity evaluations, and considerations of paramount interests.

The proposed nomenclature, 'cryptic pregnancy,' introduces a novel paradigm, aligning seamlessly with evolutionary conjectures. In essence, adept navigation of denial of pregnancy demands not only a high level of clinical acumen but also an intricate understanding of the interplay between ethical, legal, and medical dimensions. Successful engagement with this complex scenario hinges on effective communication, collaborative efforts across diverse disciplines, and an unwavering respect for the subtleties inherent in each facet of this intricate phenomenon.

In essence, the intricate phenomenon of denial of pregnancy unfolds as a complex tapestry interwoven with various challenges, demanding a sophisticated and nuanced approach for comprehensive comprehension. The spectrum of responses, ranging from covert acknowledgment to outright negation, underscores the necessity for astute interventions tailored to the specific nuances of each case. The inherent risks posed to both maternal and fetal well-being underscore the urgency for a judicious and tactful management strategy.

The ethical and legal intricacies entangled with instances of late-stage denial further accentuate the need for meticulous consideration. Central to this approach is a keen focus on individual autonomy, rigorous capacity evaluations, and a careful examination of the paramount interests at stake. The proposed nomenclature, 'cryptic pregnancy,' introduces a novel conceptual framework, seamlessly aligning with evolutionary perspectives that delve into the intricacies of this perplexing phenomenon.

Successfully navigating the terrain of denial of pregnancy requires not only a high level of clinical acumen but also a profound understanding of the dynamic interplay between ethical, legal, and medical dimensions. The complexity of this scenario necessitates effective communication strategies, collaborative efforts across diverse disciplines, and an unwavering commitment to recognizing and respecting the subtle intricacies inherent in each facet of this intriguing and multifaceted phenomenon.

REFERENCES

1. N.E. Stotland *et al.* Denial of pregnancy Prim Care Upd Obstet/Gynecol, 1998.
2. M. Kölliker *et al.* Parent-offspring conflict and the genetics of offspring solicitation and parental response Anim Behav, 2001.
3. T. Moore *et al.* Genomic imprinting in mammalian development: a parental tug-of-war Trends Genet, 1991.

4. L.S. Forbes The evolutionary biology of spontaneous abortion in humans Trends Ecol Evol, 1997.
5. S. Forbes Pregnancy sickness and embryo quality Trends Ecol Evol, 2002. E.H.
6. Hagen The function of postpartum depression Evol Hum Behav, 1999. E.H.
7. Hagen Depression as bargaining. The case postpartum Evol Hum Behav, 2002.
8. R.R. Huxley Nausea and vomiting in early pregnancy: its role in placental development Obstet Gynecol, 2000.
9. R.A. Johnstone *et al.* The continuous Sir Philip Sidney game: a simple model of biological signaling J Theor Biol, 1992.
10. A.A. Brooks *et al.* Birth weight: nature or nurture
11. R.S. Hulse, H. Ferrell, D. Gurney, Cryptic pregnancies in the emergency department, J. Emerg. Nurs, 2016 May; 42(3): 284–286.
12. D. Kettlewell, M. Dujeu, H. Nicolis, What happens next? Current knowledge and clinical perspective of pregnancy denial and children's outcome, Psychiatr. Danub, 2021; 33(2): 140–146.
13. W.D. Kenner, S.E. Nicolson, Psychosomatic disorders of gravida status: false and denied pregnancies, Psychosomatics, 2015; 56(2): 119–128.
14. M.J. Schultz, T. Bushati, Maternal physical morbidity associated with denial of pregnancy, Aust. New Zeal. J. Obstet. Gynaecol, 2015; 55(6): 559–564.
15. J. Wessel, J. Endrikat, U. Buscher, Elevated risk for neonatal outcome following denial of pregnancy: results of a one-year prospective study compared with control groups, J. Perinat. Med, 2003; 31(1): 29–35.
16. A. Jenkins, S. Millar, J. Robins, Denial of pregnancy: a literature review and discussion of ethical and legal issues, J. R. Soc. Med, 2011; 104(7): 286–291.
17. M. Simermann, S. Rothenburger, B. Auburtin, J.M. Hasco¨et, Outcome of children born after pregnancy denial, Arch. Pediatr, 2018 Apr; 25(3): 219–222.
18. H. Delong, J. Eutrope, A. Thierry, A.L. Sutter-Dallay, L. Vulliez, V. Gubler, S. Saad Saint-Gilles, E. Tessier, J. Le Foll, S. Viaux, et al., Pregnancy denial: a complex symptom with life context as a trigger? A prospective case-control study, BJOG, 2022; 129(3): 485–492.
19. K.M. Beier, R. Wille, J. Wessel, Denial of pregnancy as a reproductive dysfunction: a proposal for international classification systems, J. Psychosom. Res, 2006 Nov; 61(5): 723–730.