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YANGI DAVR ILM-FANI: INSON UCHUN INNOVATSION G‘OYA VA YECHIMLAR

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Annotatsiya
Mazkur to‘plamda “Yangi davr ilm-fani: inson uchun innovatsion g‘oya va yechimlar” mavzusidagi VII Respublika ilmiy-amaliy konferensiyasi materiallari jamlangan. Nashrda respublikaning turli oliy ta’lim muassasalari, ilmiy markazlari va amaliyotchi mutaxassislari tomonidan tayyorlangan maqolalar o‘rin olgan bo‘lib, ular ijtimoiy-gumanitar, tabiiy, texnik va yuridik fanlarning dolzarb muammolari va ularning innovatsion yechimlariga bag‘ishlangan.
Ushbu nashr ilmiy izlanuvchilar, oliy ta’lim o‘qituvchilari, doktorantlar va soha mutaxassislari uchun foydali qo‘llanma bo‘lib xizmat qiladi.

Kalit so‘zlar: ilmiy-amaliy konferensiya, innovatsion yondashuv, zamonaviy fan, fanlararo integratsiya, ilmiy-tadqiqot, nazariya va amaliyot, ilmiy hamkorlik.

MUNDARIJA

TIBBIYOT FANLARI

Comparative Observation of Arrhythmias in Healthy Pregnant Women and Those with Mitral Valve Prolapse: A Clinical Perspective

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Annotation. Mitral valve prolapse (MVP) may increase susceptibility to arrhythmias during pregnancy, especially in the third trimester when cardiovascular changes peak. This article compares arrhythmic manifestations in healthy pregnant women and those with MVP. While most arrhythmias are benign, women with MVP exhibit a higher frequency of premature contractions and, in rare cases, ventricular arrhythmias. Regular monitoring and risk-based management are essential to prevent complications and support favorable maternal and fetal outcomes.

Key words: mitral valve prolapse, pregnancy, arrhythmia, premature ventricular contraction, supraventricular tachycardia, ventricular tachycardia, maternal cardiac risk, mitral annular disjunction, peripartum monitoring, risk stratification.

SOG'LOM HOMILADOR AYOLLAR VA MITRAL QOPQOQ PROLAPSASI BO'LGAN AYOLLARDA ARITMIYALARNI QIYOSIY KUZATISH: KLINIK NUQTAI NAZAR

Yuldasheva Zulxumor Murvatdjanovna
Respublika ixtisoslashtirilgan terapiya va tibbiy reabilitatsiya ilmiy-amaliy tibbiyot markazi (RShTYoIM) Toshkent viloyati filiali kardiologi

Annotatsiya. Mitral qopqoq prolapsasi (MVP) homiladorlik davrida, ayniqsa yurak-qon tomir tizimidagi o'zgarishlar eng yuqori cho'qqisiga chiqqan uchinchi trimestrda aritmiyalarga sezuvchanlikni oshirishi mumkin. Ushbu maqola sog'lom homilador ayollar va MVP bo'lganlarda aritmik ko'rinishlarni taqqoslaydi. Ko'pgina aritmiyalar yaxshi bo'lsa-da, MVPli ayollarda erta qisqarishning yuqori chastotasi va kamdan-kam hollarda qorincha aritmiyalari namoyon bo'ladi. Muntazam monitoring va xavfga asoslangan boshqaruv asoratlarning oldini olish va ona va homila uchun qulay natijalarni qo'llab-quvvatlash uchun muhimdir.

Kalit so‘zlar: mitral qopqoq prolapsasi, homiladorlik, aritmiya, qorinchalarning erta qisqarishi, supraventrikulyar taxikardiya, qorincha taxikardiyasi, onaning yurak xavfi, mitral halqali dis'yunktsiya, peripartum monitoring, xavfning tabaqalanishi.

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1. Introduction

Pregnancy induces profound cardiovascular adaptations, including increased blood volume, heart rate, and cardiac output. These changes can unmask or exacerbate preexisting cardiac conditions, including mitral valve prolapse (MVP)—a disorder marked by systolic displacement of one or both mitral valve leaflets into the left atrium. Though often asymptomatic, MVP can present with arrhythmic complications ranging from benign

premature contractions to life-threatening ventricular tachycardia (Basso et al., 2015; Regitz-Zagrosek et al., 2018).

2. MVP and Arrhythmias in Pregnancy (Extended)

Mitral valve prolapse is a structural cardiac abnormality that can lead to mechanical and electrical changes in the heart, particularly at the level of the mitral annulus and adjacent myocardium. Pregnancy, with its heightened hemodynamic and hormonal stress, appears to increase the frequency and intensity of arrhythmic episodes in women with MVP.

In healthy pregnant women, sinus tachycardia and occasional isolated ectopic beats are common due to physiological changes, such as increased sympathetic activity. However, the arrhythmias observed in pregnant women with MVP are more often characterized by:

- Frequent **PVCs**, often monomorphic but occasionally complex;
- **PACs** and **SVT** episodes, sometimes symptomatic;
- In rare but serious cases, **non-sustained or sustained VT**.

According to Sabbag et al. (2024), women with arrhythmic MVP had a significantly higher rate of ventricular arrhythmias during the third trimester and the postpartum period, with an incidence rate ratio of 2.66. In contrast, healthy controls showed lower arrhythmic burden and rarely required pharmacologic or procedural intervention. These findings underscore the need to differentiate MVP patients with benign presentations from those at high risk.

3. Mechanisms and Risk Factors

The pathogenesis of arrhythmias in MVP involves both structural and electrical abnormalities:

- **Myxomatous degeneration** of the mitral leaflets increases leaflet redundancy, which can result in mechanical stress on the mitral annulus.
- **Mitral annular disjunction (MAD)**, frequently associated with MVP, may lead to fibrosis and delayed afterdepolarizations in adjacent myocardial tissue, serving as a substrate for ventricular arrhythmias (Basso et al., 2015).
- **Autonomic imbalance** during pregnancy (i.e., increased sympathetic tone and decreased vagal tone) further sensitizes the myocardium.
- **Hormonal fluctuations**, especially increased estrogen and progesterone levels, alter calcium handling and ion channel activity.

Key risk factors for arrhythmogenic events in MVP during pregnancy include:

- Prior history of palpitations, syncope, or documented arrhythmia;
- High PVC burden on 24-hour Holter;
- Prolonged QT interval;
- Presence of MAD or mitral regurgitation on echocardiography.

Importantly, some women may be asymptomatic carriers of high-risk features, making imaging and ambulatory monitoring vital in risk stratification.

4. Clinical Monitoring and Management

A. Monitoring Protocols

For women with known MVP, cardiac evaluation should begin in early pregnancy. Recommendations include:

- ✓ Baseline **12-lead ECG**;

- ✓ **Echocardiography** to assess leaflet thickness, prolapse severity, MR, and presence of MAD;
- ✓ **24-hour Holter monitoring** in symptomatic patients or those with prior arrhythmias;
- ✓ Repeat testing in the **third trimester** if symptoms increase.

B. Management Strategies

Most arrhythmias observed are benign and can be managed conservatively. However, intervention is indicated when:

- ✓ There is sustained tachyarrhythmia (SVT or VT);
- ✓ PVCs exceed 10–15% of total heartbeats;
- ✓ Syncope or hemodynamic instability occurs.

Pharmacologic options:

- ✓ **Beta-blockers** (e.g., metoprolol) are first-line agents for symptomatic control. Atenolol is avoided due to fetal growth restriction.
- ✓ **Adenosine** is safe and effective for acute SVT.
- ✓ **Sotalol** may be considered in select cases of sustained VT under cardiology supervision.
- ✓ **LMWH** is preferred for thromboprophylaxis in MVP patients with arrhythmias and associated thrombotic risk.

Procedural options:

- ✓ **Electrical cardioversion** is safe in all trimesters for hemodynamically unstable rhythms.
- ✓ **Catheter ablation** is generally deferred until postpartum but may be considered with 3D mapping and minimal radiation in highly refractory cases.

Delivery Planning:

- ✓ Vaginal delivery is feasible in most cases.
- ✓ Cesarean delivery is reserved for obstetric indications or severe cardiac decompensation.

5. Conclusion

Pregnant women with MVP, particularly those with arrhythmogenic features such as MAD and myxomatous degeneration, are at increased risk of arrhythmias compared to their healthy counterparts. While most of these arrhythmias are benign, their presence requires thoughtful evaluation, especially in the third trimester and postpartum. Multidisciplinary care involving cardiology, obstetrics, and anesthesiology is essential to ensure individualized monitoring, timely pharmacologic intervention, and safe delivery planning. Identifying high-risk MVP phenotypes early can help prevent rare but catastrophic outcomes such as sustained VT or sudden cardiac death.

In conclusion, while MVP in pregnancy is often manageable, it demands vigilant cardiac surveillance, risk stratification, and a structured care plan to optimize outcomes for both mother and baby.

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