Ultrasound Registry Review (URR) MV Abnormalities and Disease Practice Test (Sample)

Study Guide

Everything you need from our exam experts!

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Introduction

Preparing for a certification exam can feel overwhelming, but with the right tools, it becomes an opportunity to build confidence, sharpen your skills, and move one step closer to your goals. At Examzify, we believe that effective exam preparation isn't just about memorization, it's about understanding the material, identifying knowledge gaps, and building the test-taking strategies that lead to success.

This guide was designed to help you do exactly that.

Whether you're preparing for a licensing exam, professional certification, or entry-level qualification, this book offers structured practice to reinforce key concepts. You'll find a wide range of multiple-choice questions, each followed by clear explanations to help you understand not just the right answer, but why it's correct.

The content in this guide is based on real-world exam objectives and aligned with the types of questions and topics commonly found on official tests. It's ideal for learners who want to:

- **Practice answering questions under realistic conditions,**
- **Improve accuracy and speed,**
- **Review explanations to strengthen weak areas, and**
- **Approach the exam with greater confidence.**

We recommend using this book not as a stand-alone study tool, but alongside other resources like flashcards, textbooks, or hands-on training. For best results, we recommend working through each question, reflecting on the explanation provided, and revisiting the topics that challenge you most.

Remember: successful test preparation isn't about getting every question right the first time, it's about learning from your mistakes and improving over time. Stay focused, trust the process, and know that every page you turn brings you closer to success.

Let's begin.

How to Use This Guide

This guide is designed to help you study more effectively and approach your exam with confidence. Whether you're reviewing for the first time or doing a final refresh, here’s how to get the most out of your Examzify study guide:

1. Start with a Diagnostic Review

Skim through the questions to get a sense of what you know and what you need to focus on. Your goal is to identify knowledge gaps early.

2. Study in Short, Focused Sessions

Break your study time into manageable blocks (e.g. 30 – 45 minutes). Review a handful of questions, reflect on the explanations.

3. Learn from the Explanations

After answering a question, always read the explanation, even if you got it right. It reinforces key points, corrects misunderstandings, and teaches subtle distinctions between similar answers.

4. Track Your Progress

Use bookmarks or notes (if reading digitally) to mark difficult questions. Revisit these regularly and track improvements over time.

5. Simulate the Real Exam

Once you're comfortable, try taking a full set of questions without pausing. Set a timer and simulate test-day conditions to build confidence and time management skills.

6. Repeat and Review

Don’t just study once, repetition builds retention. Re-attempt questions after a few days and revisit explanations to reinforce learning. Pair this guide with other Examzify tools like flashcards, and digital practice tests to strengthen your preparation across formats.

There’s no single right way to study, but consistent, thoughtful effort always wins. Use this guide flexibly, adapt the tips above to fit your pace and learning style. You've got this!

Questions

1. **Mitral annular calcification is most commonly observed in which age range?**

   A. the fourth decade

   B. the sixth decade of life

   C. the seventh decade

   D. the second decade

2. **What can falsely elevate the MR velocity?**

   A. Systemic Hypertension

   B. Severe Aortic Stenosis

   C. LVOT Obstruction

   D. All of the Above

3. **Inhalation of which agent can be used to decrease venous return and increase prolapse?**

   A. Amyl Nitrite (vasodilator)

   B. Nitroglycerin

   C. Epinephrine

   D. Atropine

4. **Which Carpentier type is characterized by restricted leaflet motion only in systole?**

   A. Type I

   B. Type IIIb

   C. Type II

   D. Type IIIa

5. **Rheumatic heart disease is similar in appearance to which condition?**

   A. Atherosclerotic stenosis

   B. Calcific aortic stenosis

   C. Infective endocarditis

   D. Normal valve

6. What forms a tumor-like mass on the valve annulus composed of caseous, putty-like substance?

A. Caseous annular calcification

B. Calcified atheroma

C. Myxoma

D. Papillary fibroelastoma

7. IVRT _____ indicates severe MR.

A. < 60 ms

B. 60-80 ms

C. > 100 ms

D. Not correlated with MR severity.

8. In rheumatic heart disease, which valve is most commonly affected?

A. Pulmonary Valve (PV)

B. Tricuspid Valve (TV)

C. Aortic Valve (AOV)

D. Mitral Valve (MV)

9. What can acute MR cause?

A. LA pressure overload

B. Right ventricular hypertrophy

C. Systemic hypertension

D. Constrictive pericarditis

10. If both mitral leaflets prolapse, the MR jet angle is:

A. Inferiorly

B. Anteriorly

C. Centrally

D. Posteriorly

Answers

1. B
2. D
3. A
4. B
5. C
6. A
7. A
8. D
9. A
10. C

Explanations

1. Mitral annular calcification is most commonly observed in which age range?

A. the fourth decade

B. the sixth decade of life

C. the seventh decade

D. the second decade

Mitral annular calcification is an age-related degenerative change of the fibrous ring of the mitral valve. As people age, calcific deposits tend to accumulate along the annulus, so MAC is most commonly seen in middle-aged adults. In practical terms, the highest frequency of MAC is typically reported in individuals in their 50s, making that age range the best answer. It becomes more common as age advances into the 60s and beyond, but the question focuses on where it is most commonly observed, which is the 50s. Younger ages—teens, 20s, and even early 40s—rarely show MAC.

2. What can falsely elevate the MR velocity?

A. Systemic Hypertension

B. Severe Aortic Stenosis

C. LVOT Obstruction

D. All of the Above

MR velocity reflects the pressure gradient between the left ventricle and left atrium during systole. Any factor that increases LV systolic pressure or the LV–LA gradient will raise the Doppler jet velocity, even if the regurgitant orifice size hasn't changed. Systemic hypertension raises afterload, pushing LV systolic pressure higher and increasing the LV–LA gradient, which elevates the MR velocity. Severe aortic stenosis makes the LV generate higher systolic pressure to push blood through a narrowed aortic valve, again boosting the gradient and the MR velocity. LVOT obstruction acts similarly by increasing afterload and LV systolic pressure, raising the gradient across the mitral valve during systole. Because the Doppler-measured MR velocity hinges on this gradient, all these conditions can falsely elevate the velocity reading, potentially exaggerating perceived MR severity unless the LV pressure context is considered.

3. Inhalation of which agent can be used to decrease venous return and increase prolapse?

A. Amyl Nitrite (vasodilator)

B. Nitroglycerin

C. Epinephrine

D. Atropine

Mitral valve prolapse is more evident when the left ventricle has less filling, so reducing preload makes the prolapsing leaflets bulge more clearly. Inhaled amyl nitrite is a rapid-acting venodilator that quickly decreases venous return to the heart, lowering preload. This sudden drop in venous return exaggerates the prolapse of the mitral valve during systole, making it easier to detect on exam or with echocardiography. Other agents either don't act as a fast venodilator or don't reduce preload in the same way—nitroglycerin can lower preload but isn't typically used as a provocative test for prolapse; epinephrine and atropine don't produce this preload-reduction effect and may even counteract it.

4. Which Carpentier type is characterized by restricted leaflet motion only in systole?

A. Type I

B. Type IIIb

C. Type II

D. Type IIIa

In this Carpentier framework, we classify mitral valve motion by how the leaflets move during the cardiac cycle. Type I means normal leaflet motion with MR from issues like annular dilation. Type II is increased leaflet motion, such as prolapse or flail. Type III is split into two patterns: IIIa, where the leaflets are restricted in both systole and diastole (often Rheumatic disease); and IIIb, where restriction occurs only during systole. When the leaflet motion is limited specifically in systole, it points to Type IIIb, typically due to tethering from papillary muscle displacement in ischemic or dilated cardiomyopathy.

5. Rheumatic heart disease is similar in appearance to which condition?

A. Atherosclerotic stenosis

B. Calcific aortic stenosis

C. Infective endocarditis

D. Normal valve

Rheumatic heart disease alters valve structure in a way that can resemble infective endocarditis on ultrasound. The damaged valve becomes thickened and deformed, with restricted motion and abnormal surfaces that can mimic the irregular, mass-like appearance seen with vegetations. Infective endocarditis classically shows mobile vegetations attached to valve leaflets, whereas rheumatic disease tends to produce fixed thickening and commissural fusion. When evaluating a valve with prior rheumatic involvement, the overall look of abnormal leaflet surface and dysfunction can be mistaken for endocarditis if one focuses only on surface irregularity, so the two can appear similar. Clinically, distinguishing features include the mobility and mass nature of vegetations in endocarditis and the history of rheumatic fever with chronic valve deformity in rheumatic disease.

6. What forms a tumor-like mass on the valve annulus composed of caseous, putty-like substance?

A. Caseous annular calcification

B. Calcified atheroma

C. Myxoma

D. Papillary fibroelastoma

This is caseous annular calcification, a rare variant of mitral annulus calcification where the center of the calcified ring undergoes liquefactive change, forming a putty-like, caseous material that creates a tumor-like mass on the valve annulus. It often sits on the mitral annulus and can mimic a tumor or vegetation on imaging, yet it is a non-neoplastic degenerative process. The other entities are different: a calcified atheroma is an atherosclerotic plaque in arteries rather than a mass on the valve ring; a myxoma is a true cardiac tumor usually arising in the left atrium and has a gelatinous texture; a papillary fibroelastoma is a small, mobile tumor on valve surfaces, typically not described as containing caseous material.

7. IVRT _____ indicates severe MR.

A. < 60 ms

B. 60-80 ms

C. > 100 ms

D. Not correlated with MR severity.

Short isovolemic relaxation time indicates severe MR because regurgitation raises left atrial pressure. When the left atrial pressure is high due to a large MR jet, the LV pressure only has to fall a short distance to become lower than LA pressure, so the mitral valve opens earlier after the aortic valve closes. That makes the interval between aortic valve closure and mitral valve opening very brief, often under about 60 ms. Conversely, if IVRT is prolonged (over about 100 ms), this points more to LV relaxation abnormalities or other diastolic dysfunction rather than MR severity.

8. In rheumatic heart disease, which valve is most commonly affected?

A. Pulmonary Valve (PV)

B. Tricuspid Valve (TV)

C. Aortic Valve (AOV)

D. Mitral Valve (MV)

Rheumatic heart disease most commonly targets the mitral valve. After a streptococcal infection, an immune-mediated inflammatory process preferentially involves the left-sided valves, with the mitral valve bearing the brunt due to the higher pressures and its complex architecture. Over time this leads to leaflet thickening, commissural fusion, and chordae shortening, producing mitral stenosis (the classic chronic lesion) and sometimes regurgitation. The aortic valve is the next most commonly affected, while the tricuspid and pulmonary valves are less commonly involved. Clinically, mitral involvement often presents with features of mitral stenosis, such as a diastolic murmur and, on auscultation, an opening snap.

9. What can acute MR cause?

A. LA pressure overload

B. Right ventricular hypertrophy

C. Systemic hypertension

D. Constrictive pericarditis

Acute mitral regurgitation causes a sudden backflow of blood into the left atrium during systole. Because the left atrium hasn't had time to dilate or adapt quickly, this regurgitant volume raises left atrial pressure abruptly — an LA pressure overload. That abrupt pressure rise leads to pulmonary venous congestion and can cause pulmonary edema and hemodynamic instability. In contrast, chronic MR tends to produce left atrial and LV dilation from volume overload rather than a rapid increase in pressure. The other options don't fit as direct consequences of acute MR: right ventricular hypertrophy is more about sustained pulmonary hypertension or right-sided disease; systemic hypertension is a broad afterload issue not triggered specifically by MR; constrictive pericarditis is a pericardial constraint syndrome with different filling dynamics.

10. If both mitral leaflets prolapse, the MR jet angle is:

A. Inferiorly

B. Anteriorly

C. Centrally

D. Posteriorly

Mitral regurgitation jet direction reflects where the regurgitant orifice sits on the mitral valve. If only one leaflet prolapses, the jet tends to be directed toward the opposite wall of the left atrium—an anterior leaflet prolapse pushes the jet posteriorly, a posterior leaflet prolapse pushes it anteriorly. When both leaflets prolapse, the regurgitant orifice is effectively centered in the mitral valve orifice, so the backward flow enters the left atrium in a central trajectory rather than toward either wall. That central flow pattern is why the central jet is the best answer.

Next Steps

Congratulations on reaching the final section of this guide. You've taken a meaningful step toward passing your certification exam and advancing your career.

As you continue preparing, remember that consistent practice, review, and self-reflection are key to success. Make time to revisit difficult topics, simulate exam conditions, and track your progress along the way.

If you need help, have suggestions, or want to share feedback, we'd love to hear from you. Reach out to our team at hello@examzify.com.

Or visit your dedicated course page for more study tools and resources:

https://urrmvabnormalitiesdisease.examzify.com

We wish you the very best on your exam journey. You've got this!