

Solutions

Medical Underwriting at Work for You

LIFE AND DISABILITY INSURANCE



MetLife

NT-proBNP

A blood test close to our hearts

By Medical Resources

Helen, 72, is a retired woman who has applied for life insurance. As part of her age and amount requirements, a blood test was drawn. The results of these blood tests were normal other than her NT-proBNP which was 251 pg/ml – a result considered abnormal by the laboratory. Helen has a medical history significant for mild hypertension, controlled with a single medication, and osteoarthritis. She volunteers at a local pet shelter and walks 1-2 miles per day. Her insurance EKG was normal. She has never had an echocardiogram, stress test or other heart tests.

Esteban, 41, is a legal affairs consultant for a major corporation. He is applying for life insurance and disability income insurance. He has a medical history significant for aortic valvular stenosis discovered incidentally at a physical examination done 6 years ago. He has had an echocardiogram once per year since then, and these have all shown stable, moderate stenosis. Esteban remains active, participating in a local cycling club, and he has no significant symptoms. As part of his most recent evaluation with his cardiologist Esteban had a NT-proBNP blood test. It was abnormal, 185 pg/ml.

Roderick, 71, is a self-employed accountant applying for life insurance. Two years ago, at a physical examination he was discovered to have protein in his urine as well as pre-diabetes with a hemoglobin A1c of 6.7%. He had no other abnormal findings, though he does have a history of mild, well-controlled hypertension. His level of urine protein was in the moderate range (an albumin to creatinine ratio of 45). This has been stable over time. He had a normal ultrasound of his kidneys and his blood tests have demonstrated normal kidney function. He has had no other cardiac testing. His NT-proBNP for life insurance purposes was normal at 72 pg/ml.

Hypothetical Underwriting Results

Helen's NT-proBNP is not actually very high once her age is considered. Assuming she otherwise qualified based on her build, blood pressure, cholesterol measurements and other considerations, she could be offered life insurance at Preferred rates (any class of Preferred for which she otherwise qualified). Helen would not qualify for DI because of her age.

Esteban's level of NT-proBNP is abnormal. However, the presence of an abnormal level is explained by his history of aortic stenosis. Though the presence of stable, moderate aortic stenosis means that Esteban would be offered a life insurance policy at moderately substandard rates (approximately table D), his level of NT-proBNP would not result in the assessment of additional debits. Unfortunately, Esteban would not be offered disability income insurance due to his heart condition.

Roderick could qualify for life insurance at Standard rates, thanks to his low level of NT-proBNP. Ordinarily, someone like Roderick would be offered life insurance at low substandard rates (table B). However, because his level of NT-proBNP is reassuring, he qualifies for credits similar to those given for a normal stress test.

Questions to ask your clients with elevated levels of NT-proBNP

- 1 – Do you have a history of heart failure or abnormal heart valves?
- 2 – Do you have a history of an abnormal heart rhythm?
- 3 – Do you have a history of kidney disease?
- 4 – Are you taking any prescription medications?
- 5 – Have you had any cardiac testing like stress tests, echocardiograms or angiography?

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What is NT-proBNP?

NT-proBNP is the inactive half of a larger protein (proBNP). The active half, BNP, is a hormone which is made in the heart in response to the stretching of the heart muscle fibers. It was first discovered as an indicator of heart failure in people who present to emergency departments because of shortness of breath. In the years since that initial discovery, BNP and the more stable NT-proBNP have emerged as indicators of cardiac disease. Studies have also shown them to be strongly associated with the risk of death over time.¹

The cases presented here are hypothetical. Specific ratings will vary based on a client's complete medical history.

Elevated levels of NT-proBNP are associated with several different diseases, most notably atrial fibrillation, valvular heart disease, heart failure and renal (kidney) disease. Additionally, women tend to have slightly higher average levels than men, and levels increase substantially with age (especially after age 70).² Obesity is associated with slightly lower levels. Even in the presence of known heart or kidney disease NT-proBNP remains predictive – so that an individual with, say, atrial fibrillation and a low NT-proBNP has a lower risk of death than someone with atrial fibrillation and a high level of NT-proBNP.³ Because of its prognostic potential, NT-proBNP testing has become more common in the life insurance industry.

For more information, contact a member of your Underwriting team today.

¹ McKie PM, et. al. Amino-Terminal Pro-B-Type natriuretic Peptide and B-Type Natriuretic Peptide. *Hypertension*. 2006 May ; 47(5): 874–880.

² Munagala VK, et. al. The Natriuretic Peptides in Cardiovascular Medicine. *Curr Probl Cardiol* 2004;29:707-769.

³ Hijazi Z, et. al. Cardiac Biomarkers Are Associated With an Increased Risk of Stroke and Death in Patient With Atrial Fibrillation. *Circulation*. 2012;125:1605-1616

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