Medical Ultrasonography
2009, Vol. 11, no. 3, 29–32

Carotid duplex examination - online methods of patient education

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Abstract

The authors present the most important online patient education methods concerning the carotid ultrasound imaging (easy-to-read articles, brochures, patient pages, illustrations, video podcasts, frequently asked questions).

Key words: patient education, websites, carotid artery, duplex ultrasonography

Rezumat

Autorii prezintă cele mai importante metode online de educaţie a pacienţilor referitoare la ultrasonografia duplex a arterelor carotide (articole, broşuri, pagini ale pacientului, ilustraţii, imagini video, întrebări frecvente).

Cuvinte cheie: educaţia pacientului, internet, artera carotidă, ultrasonografie duplex

The carotid artery disease represents the narrowing or blockage of one or more of the carotid arteries in patients with or without clinical features.

The American Society of Neuroimaging and the Society of Vascular and Interventional Neurology recommend the screening for asymptomatic carotid artery stenosis (whose prevalence is about 2-18%) in high-risk subjects and in patients with peripheral arterial disease, renal artery stenosis, and abdominal aortic aneurysm [1].

The European Societies of Hypertension and of Cardiology recommend carotid ultrasound imaging as a test for the evaluation of every patient with arterial hypertension because the carotid intima-media thickness (more than 0.9 mm) has a good predictive value for the cardiovascular diseases. More than that, carotid wall thickening or plaque represents important subclinical organ damage in patients with arterial hypertension [2].

For this reason, the general population and the patients with cardiovascular and cerebrovascular diseases must be informed about the most important aspects of the carotid duplex ultrasound (indications, technique, and interpretation of the results). All the questions came from patients need easy-to-understand answers [3-6]:

- What is carotid ultrasound used for?
- How much does the exam cost?
- How do I prepare for the exam?
- Who will perform the exam?
- What happens during the investigation?
- How long does the exam take?
- Is this exam safe?
- Will I need more exams?

There is a wide variety of online providers of patient education resources concerning all aspects of carotid duplex imaging: national institutes [7], university medical

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centers [8], scientific societies [9], hospitals [4-6], patient portals initiated by societies and associations [10], websites offering evidence-based medical information [11], free content encyclopedia [12], and personal websites [13].

Here are some examples of online methods of patient education in the field of carotid ultrasound investigation:

- Easy-to-read articles about carotid ultrasound
- Easy-to-read articles with chapters concerning carotid Doppler examination
- Brochures
- Booklets
- Pamphlets
- Fact Sheets
- Leaflets
- Brief explanations/essential information about carotid duplex
- Medical journals with "Patient Pages"
- Frequently asked questions (FAQs)
- Illustrations
- Video podcasts
- Joining a clinical trial

Easy-to-read articles about carotid ultrasound:

- http://en.wikipedia.org The Free Encyclopedia > Search > Carotid Duplex
- www.brighthub.com/science/medical/articles/33671.aspx Bright Hub. Information on Blood Test Results That Would Trigger Carotid Ultrasound (Lloyd E, April 30, 2009)
- www.diagnosticimaging.com CMP Medica LLC, a United Business Media Company > Imaging Trends and Advances > Cardiovascular Imaging >Carotid ultrasound predicts stroke, heart attack risk (Abella HA, August 15, 2008)
- www.nhlbi.nih.gov/health/dci/Diseases/cu/cu_whatis.html National Heart, Lung, and Blood Institute. Diseases and Conditions Index. Carotid Ultrasound
- www.nlm.nih.gov/medlineplus National Library of Medicine (NLM) National Institute of Health (NIH) > Medical Encyclopedia > C-Cg > Carotid Duplex
- www.radiologyinfo.org The radiology information resource for patients (developed jointly by the American College of Radiology & The Radiological Society of North America) > Diagnostic Radiology > Procedure or Exam > Ultrasound > Carotid
- www.vascular.co.nz Damien Mosquera, Taranaki Base Hospital, New Plymouth, New Zeeland (personal website) > General vascular disease > Assessment of carotid artery disease > Duplex scanning versus angiography in the assessment of carotid artery stenosis

Easy-to-read articles with chapters concerning carotid Doppler examination:

- http://healthlibrary.brighamandwomens.org Brigham and Women's Hospital Boston, MA. A Teaching Affiliate of Harvard Medical School > Health Information > Adult Health Library > Cardiovascular Diseases > Vascular Conditions and Diseases > Carotid Artery Disease > How is Carotid Artery Disease diagnosed?
- www.californiaheartclinic.com California Heart & Vascular Clinic San Diego, CA > For Patients > Patient Education Library > Tests > Duplex Ultrasonography
- www.cardiologychannel.com Healthcommunities.com, Inc > Conditions > Stroke > Diagnosis
- www.clevelandclinic.org The Cleveland Clinic, Ohio > Diseases & Conditions > Carotid Artery Disease > How is carotid artery disease diagnosed?
- www.dukeheartcenter.org Duke Medical Center, NC > Patient Education > Patient Education Library > Conditions > Carotid Artery Disease > Diagnosis; or www.dukeheartcenter.org Duke Medical Center, NC > Patient Education > Patient Education Library > Conditions > Stroke > Diagnosis; or www.dukeheartcenter.org Duke Medical Center, NC > Patient Education > Patient Education Library > Tests > Duplex Ultrasonography
- www.empowher.com Women's Health Online > Media Library > Articles > Browse Procedures A-Z or by category > Arteries and veins > Carotid Artery Endarterectomy
- www.mayoclinic.org The Mayo Foundation for Medical Education and Research > Diseases & Treatments > Find a Disease or Treatment > C > Carotid Artery Disease > Diagnosis > Doppler Ultrasound
- www.medicinenet.com > Diseases & Conditions A-Z list > S > Stroke > How is Stroke Diagnosed > Carotid Doppler Ultrasound
- www.neurosurgerytoday.org The public Website for the American Association of Neurological Surgeons > Patient Outreach > Conditions & Treatments by Subspecialty > Stroke/Related Conditions > Carotid Endarterectomy and Stenosis
- www.umm.edu University of Mariland Medical Center, MD > Medical References > In-Depth Patient Education Reports > Articles > Stroke > Diagnosis
- www.urmc.rochester.edu University of Rochester Medical Center > Quick Links > Health Encyclopedia > Adult Health Encyclopedia > Heart Center > Stroke > Evaluation Procedures for Stroke > Tests That Measure Blood Flow
- www.vascularweb.org Society for Vascular Surgery > Patients and Families > Vascular Conditions, Tests, Treatments > Conditions > Carotid Artery Disease

Brochures:

- www.azheart.com Arizona Heart Institute Phoenix, AZ > Select a brochure > Carotid Artery Disease and Stroke > Diagnosis of Cerebrovascular Disease
- www.patienteducationcenter.com or www.patientedu.org Pri-Med Patient Education Center (a consumer health information service created by Harvard Medical School, distributed in collaboration with the Medical Group Management Association) > Pri-Med Health Brochures > Stroke > Diagnosing a Stroke > Imaging and Blood-Flow Studies > Doppler Ultrasound

Booklets:

- www.sign.ac.uk Scottish Intercollegiate Guidelines Network (SIGN), Edinburgh (Scotland) > Patient Involvement > Patient Network > Stroke assessment. Booklet for patients > What tests may I have?

Pamphlets:

- www.aium.org American Institute of Ultrasound in Medicine > Store > Patient Pamphlets > Doppler Ultrasound Patient Pamphlet
- www.svunet.org Society for Vascular Ultrasound > Publications & Products > Patient Education Guidelines > Cerebrovascular Disease

Fact Sheets:

- www.med.nyu.edu New York University Langone Medical Center > Diseases & Conditions Information > Tests & Procedures A-Z > Procedure & Surgery Fact Sheets > C > Carotid Artery Endarterectomy > What to Expect > Prior to Procedure > Ultrasound or www.med.nyu.edu New York University Langone Medical Center > Diseases & Conditions Information > Tests & Procedures A-Z > D > Doppler Ultrasound > Parts of the Body involved

Leaflets:

- www.patient.co.uk > Information Leaflets > Heart/Blood Vessels Category > Stroke > Are any tests needed?

Brief explanations/Essential information about carotid duplex:

- www.abilenecardiology.com Cardiology Consultants, Abilene Heart & Vascular Institute, Abilene, TX > Resources > Tests & Procedures > Carotid Duplex Scans
- www.asecho.org The American Society of Echocardiography > See My Heart > Circulation Ultrasound > What is Carotid Ultrasound
- www.geneseevascularlab.com Genesee Vascular Lab, Inc. Rochester, NY (company providing preventive health screenings) > Diagnostic Exams > Carotid > Carotid Duplex Scan
- www.healthscout.com The Health Scout Network > Health Encyclopedia > Test > C > Carotid duplex
- www.hopkinsmedicine.org Johns Hopkins Medicine > Johns Hopkins Heart & Vascular Institute > Conditions & Treatments > Treatments/Procedures > Carotid Ultrasound
- www.icavl.org Intersocietal Comission for the Accreditation of Vascular Laboratories > ICAVL news > Patient Information > Types of Vascular Exams > Carotid Duplex
- www.loyolauniversity.adam.com Loyola Medicine Maywood, IL > Health Guide > Health Encyclopedia > C > Carotid Duplex
- www.medhelp.org > Health Topics > Tags > D > Carotid Duplex
- www.ohsu.edu Oregon Health & Science University (OHSU), OR > Healthcare > Health Information > Heart Care > Carotid Artery Duplex Scan
- www.ucsfhealth.org University of California San Francisco (UCSF) Medical Center, CA > Health Library > Medical Tests > C > Carotid Duplex
- www.vascularweb.org Society for Vascular Surgery > Patients and Families > Vascular Conditions, Tests, Treatments > Tests > Duplex Ultrasound > Carotid Occlusive Disease

Medical journals with "Patient Pages":

- www.circ.ahajournals.org Circulation > Circulation Archives > Browse by Special Section > Special Sections > Cardiology Pacient Page: Sobieszczyk P, Beckman J. Carotid Artery Disease, Circulation 2006; 114: e244 – e247; Yesenko SL, Whitelaw SM, Gornik HL. Testing in the Noninvasive Vascular Laboratory, Circulation 2007; 115: e624 – e626.

Frequently asked questions:

- www.asecho.org The American Society of Echocardiography > See My Heart > Ultrasound FAQ's > Frequently Asked Questions about Circulation Ultrasound (Vascular Ultrasound)

Illustrations:

- www.patienteducationcenter.com or www.patientedu.org Pri-Med Patient Education Center (a consumer health information service created by Harvard Medical School, distributed in collaboration with the Medical

Group Management Association) > Pri-Med Health Brochures > Stroke > Diagnosing a Stroke > Imaging and Blood-Flow Studies > Figure 11. Doppler Ultrasound
- www.mvcardiology.com Merrimack Valley Cardiology, Chelmsford, MA > Patient Education > Heart Testing > Carotid Ultrasound
- www.nlm.nih.gov/medlineplus National Library of Medicine (NLM) National Institute of Health (NIH) > Medical Encyclopedia > C-Cg > Carotid Duplex > Illustrations
- www.nhlbi.nih.gov/health/dci/Diseases/cu/cu_whatis.html National Heart, Lung, and Blood Institute. Diseases and Conditions Index. Carotid Ultrasound
- www.asecho.org The American Society of Echocardiography > See My Heart > Circulation Ultrasound > Click here to view a Non-Invasive Vascular Ultrasound
- www.legacyheartcenter.com Legacy Heart Center, Plano, TX > Tests & Procedures > Sonograms > Carotid Artery Sonogram
- www.theheartcenter.net Cardiovascular Associates (Tennessee, Virginia, Kentuky, and North Carolina) > Services > Carotid Ultrasound or www.theheartcenter.net > For Patients > Patient Education > Tests > Duplex Ultrasonography
- www.umm.edu University of Mariland Medical Center, MD > Medical References > In-Depth Patient Education Reports > Image Pages > Carotid Duplex
- www.urmc.rochester.edu University of Rochester Medical Center > Quick Links > Health Encyclopedia > Info Extras > Tests & Procedures > Cardiovascular (Cardiac & Vascular System) > Carotid Artery Duplex or Vascular Studies

Video podcasts:

- www.empowher.com Women's Health Online > Media Library > Video > Dr. Saks – Carotid Ultrasound, What Is It? (January 29, 2009)

Joining a clinical trial:

www.clinicaltrials.gov > Search > Carotid Ultrasound >
- Atherosclerosis in the Coronary and Carotid Arteries, National Heart, Lung, and Blood Institute (NHLBI) (Identifier 00080587)
- Carotid Plaque Screening Trial in Smokers (CAROSS), University of Lausanne, Swiss Heart Foundation (Identifier NCT 00548665)
- Carotid Ultrasound in the Evaluation of Heart Failure (CUE-HF), New York University School of Medicine, Cardiac Center Foundation (Identifier NCT 00810550)
- Improving Cardiovascular Risk Prediction Using Hand Held Carotid Ultrasonography Study (MERC CIMT), University of Wisconsin, Madison (Phase IV, Identifier NCT 00574457)
- Office Practice Assessment of Carotid Atherosclerosis Using Handheld Ultrasound (OPACA) Study, University of Wisconsin, Madison (Identifier NCT 00258973)
- Relation of Circulating Endothelium-Derived Microparticle to Carotid Atherosclerosis, Kurume University, Kurume, Fukuoda, Japan (Identifier NCT 00795067)
- The Effect of Fish Oil Supplementation on Endothelial Function, Heart Rate Variability, and Intimal Media Thickness of Patients With Coronary Artery Disease, University of California, Los Angeles, Reliant Pharmaceuticals (Identifier NCT 00454493)

The final objectives of all these online methods of patient education are to create a strong patient-physician relationship and to improve the patient compliance.

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4. www.jupitermed.com Jupiter Medical Center, Jupiter, FL > Advanced Imaging Services > Ultrasound
5. www.vaheart.org Virginia Heart & Vascular Institute, Richmond VA > Patient Education > Tests > Vascular Articles > Duplex Ultrasound
6. www.massgeneral.org Massachusetts General Hospital, Boston, MA > Centers & Services > Clinical Departments > Radiology > Imaging Services > Ultrasound > Brochure-Patient Guide Ultrasound Scan
7. www.nhlbi.nih.gov/health/dci/Diseases/cu/cu_whatis.html National Heart, Lung, and Blood Institute
8. www.urmc.rochester.edu University of Rochester Medical Center
9. www.vascularweb.org Society for Vascular Surgery
10. www.radiologyinfo.org The radiology information resource for patients of the Radiological Society of North America
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