PubReader & CrossMark in Synapse

권 오 훈
(의편협 정보관리위원장)

PubReader


Synapse
Korean Circulation Journal
www.koreancircj.kr
Aims and Scope | Instructions for Authors | Online Submission
About Synapse
Overview
Help
Disclaimer
Journal List > Korean Circ J > v.43(1); Jan 2013
Advanced Cardiac MR Imaging for Myocardial Characterization and Quantification: T1 Mapping
Hwang SH, Choi BW.
Prevalence of Congenital Coronary Artery Anomalies of Korean Men Detected by Coronary Computed Tomography
Park JH, Kwon NH, Kim JH, Ko YJ, Ryu SH, Ahn SJ, Kim YJ, Baeg JY, Kim JI.
Association between Serine/Threonine Kinase 39 Gene Polymorphism, Hypertension, and Other Cardiovascular Risk Factors in Koreans
Shin DJ, Lee SH, Park S, Jang Y.
Hypercholesterolemia and In-Vivo Coronary Plaque Composition in Patients with Coronary Artery Disease: A Virtual Histology - Intravascular Ultrasound Study
Seo YH, Lee CS, Yuk HB, Yang DJ, Park HW, Kim KH, Kim WH, Kwon TG, Bae JH.
Characteristics and Outcomes of Atrial Tachycardia Originating from the Sinus Venosus during Catheter Ablation of Atrial Fibrillation
Park YM, Kook H, Kim W, Lee SK, Choi JI, Lim HE, Park SW, Kim YH.
Full Text
Links
Synapse

Synapse full text 보기

- XML
- PubReader
- PDF
- ePub

XML

Original Article

http://dx.doi.org/10.4070/kcj.2013.43.1.23
Print ISSN 1738-5520 • On-line ISSN 1738-5555

kcj
Korean Circulation Journal

Hypercholesterolemia and *In-Vivo* Coronary Plaque Composition in Patients with Coronary Artery Disease: A Virtual Histology - Intravascular Ultrasound Study

Young Hoon Seo, MD, Chung Seop Lee, MD, Hyung Bin Yuk, MD, Dong Ju Yang, MD, Hyun Woong Park, MD, Ki Hong Kim, MD, Wan Ho Kim, MD, Taek-Geun Kwon, MD, and Jang-Ho Bae, MD

Division of Cardiology, Heart Center, Konyang University Hospital, Daejeon, Korea

Background and Objectives: Hypercholesterolemia is a key factor in the development of atherosclerosis. We sought to evaluate the relation between hypercholesterolemia and plaque composition in patients with coronary artery disease.

Subjects and Methods: Study subjects consisted of 323 patients (mean 61.5 years, 226 males) who underwent coronary angiography and virtual histology-intravascular ultrasound examination. Patients were divided into two groups according to total cholesterol level: hypercholesterolemic group (≥200 mg/dL, n=114) and normocholesterolemic group (<200 mg/dL, n=209).

Results: Hypercholesterolemic patients were younger (59.7±13.3 years vs. 62.6±11.5 years, p=0.036), than normocholesterolemic patients, whereas there were no significant differences in other demographics. Hypercholesterolemic patients had higher corrected necrotic core volume (1.23±0.85 mm^3/mm vs. 1.02±0.80 mm^3/mm, p=0.029) as well as percent necrotic core volume (20.5±8.5% vs. 18.0±9.2%, p=0.016) than normocholesterolemic patients. At the minimal lumen area site, percent necrotic core area (21.4±10.5% vs. 18.4±11.3%, p=0.019) and necrotic core area (1.63±1.09 mm^2 vs. 1.40±1.20 mm^2, p=0.088) were also higher than normocholesterolemic patients. Multivariate linear regression analysis showed that total cholesterol level was an independent factor of percent necrotic core volume in the culprit lesion after being adjusted with age, high density lipoprotein-cholesterol , hypertension, diabetes mellitus, smoking and acute coronary syndrome (beta 0.027, 95% confidence interval 0.02-0.053, p=0.037).

Conclusion: Hypercholesterolemia was associated with increased necrotic core volume in coronary artery plaque. This study suggests that hypercholesterolemia plays a role in making plaque more complex, which is characterized by a large necrotic core, in coronary artery disease. **(Korean Circ J 2013;43:23-28)**

KEY WORDS: Hypercholesterolemia; Coronary artery disease; Ultrasonography; Interventional plaque; Atherosclerotic.

Introduction

Atherosclerosis is one of leading causes of death in developed countries. Rupture of vulnerable plaque characterized by large lipid contents is a main cause of acute coronary syndrome (ACS) and sudden cardiac death.[1-4] Accumulation of low density lipoprotein (LDL) particles is the initial step in atherogenesis and cholesterol is a major component of atherosclerotic plaque.[5,6] Inflammation and vascular smooth muscle cell proliferation are also important in atherogenesis.[7,8] Although hypercholesterolemia promotes accumulation of LDL particles in intima, tissue characterization of coronary plaque according to cholesterol level has not been reported.

A recently developed virtual histology-intravascular ultrasound (VH-IVUS) provides a method of accurate *in vivo* analysis regarding coronary plaque using radiofrequency spectral analysis identifying the fibrous, fibro-fatty, dense calcium and necrotic cores in the coronary plaque in coronary artery.[9,10] It has been shown to have a 93-97% *ex vivo* and 87-92% *in vivo* accuracy for specific tissue compo-

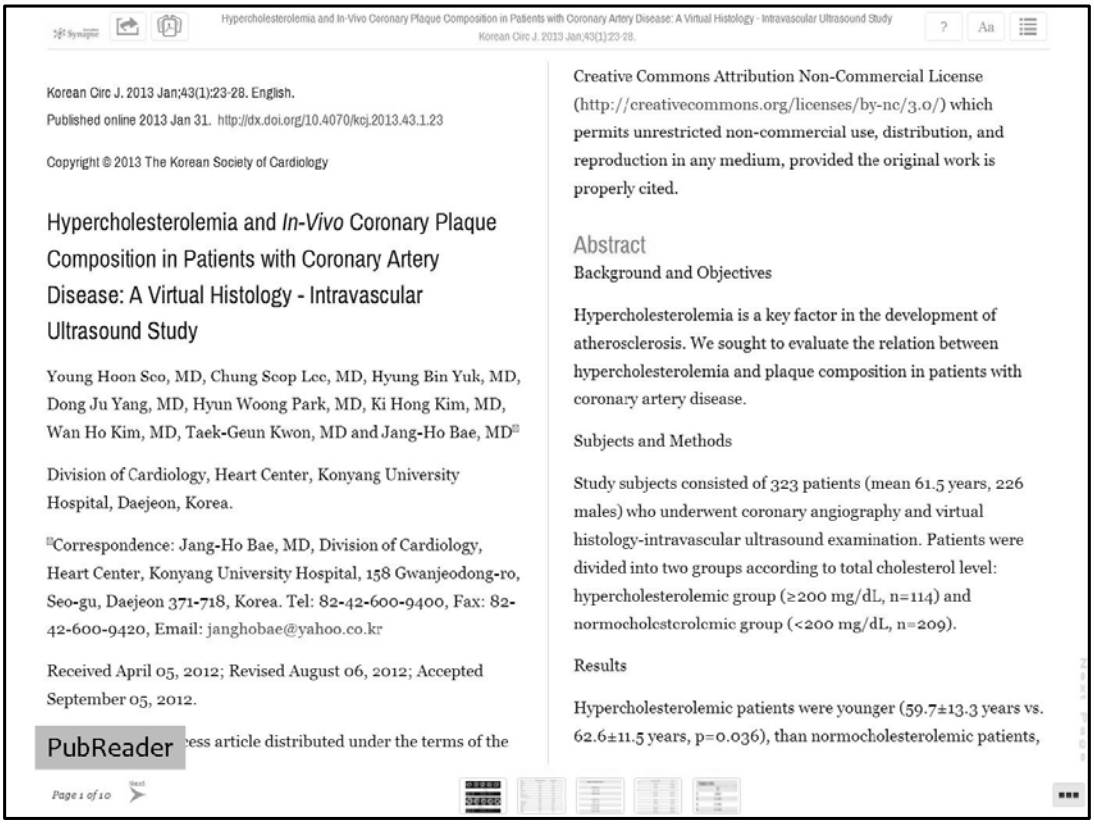
Received: April 6, 2012
Revision Received: August 6, 2012
Accepted: September 5, 2012
Correspondence: Jang-Ho Bae, MD, Division of Cardiology, Heart Center, Konyang University Hospital, 158 Gwanjeodong-ro, Seo-gu, Daejeon 371-718, Korea
Tel: 82-42-600-9400, Fax: 82-42-600-9420
E-mail: janghobae@yahoo.co.kr

• The authors have no financial conflicts of interest.

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (http://creativecommons.org/licenses/by-nc/3.0) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

PDF

Copyright © 2013 The Korean Society of Cardiology



Korean Circ J. 2013 Jan;43(1):23-28. English.
Published online 2013 Jan 31. http://dx.doi.org/10.4070/kcj.2013.43.1.23

Copyright © 2013 The Korean Society of Cardiology

Hypercholesterolemia and *In-Vivo* Coronary Plaque Composition in Patients with Coronary Artery Disease: A Virtual Histology - Intravascular Ultrasound Study

Young Hoon Seo, MD, Chung Seop Lee, MD, Hyung Bin Yuk, MD, Dong Ju Yang, MD, Hyun Woong Park, MD, Ki Hong Kim, MD, Wan Ho Kim, MD, Taek-Geun Kwon, MD and Jang-Ho Bae, MD

Division of Cardiology, Heart Center, Konyang University Hospital, Daejeon, Korea.

Correspondence: Jang-Ho Bae, MD, Division of Cardiology, Heart Center, Konyang University Hospital, 158 Gwanjeodong-ro, Seo-gu, Daejeon 371-718, Korea. Tel: 82-42-600-9400, Fax: 82-42-600-9420, Email: janghobae@yahoo.co.kr

Received April 05, 2012; Revised August 06, 2012; Accepted September 05, 2012.

cess article distributed under the terms of the Creative Commons Attribution Non-Commercial License (http://creativecommons.org/licenses/by-nc/3.0/) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

PubReader

Abstract

Background and Objectives

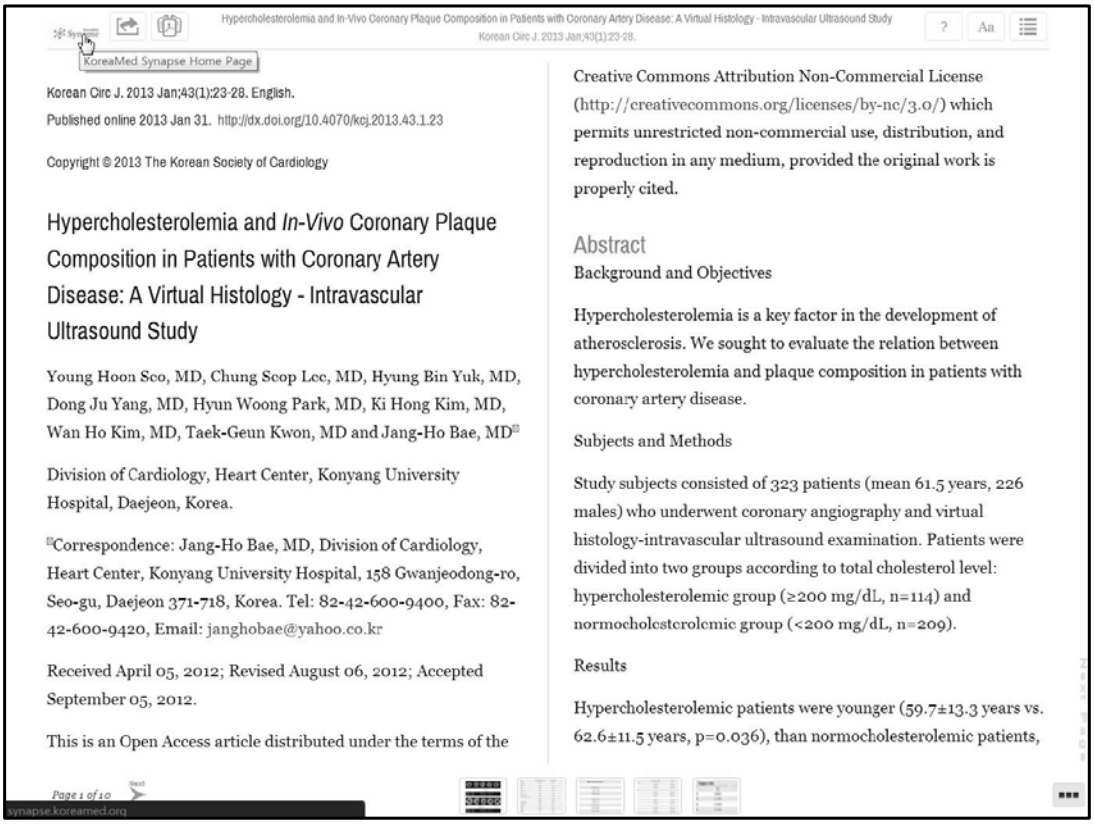
Hypercholesterolemia is a key factor in the development of atherosclerosis. We sought to evaluate the relation between hypercholesterolemia and plaque composition in patients with coronary artery disease.

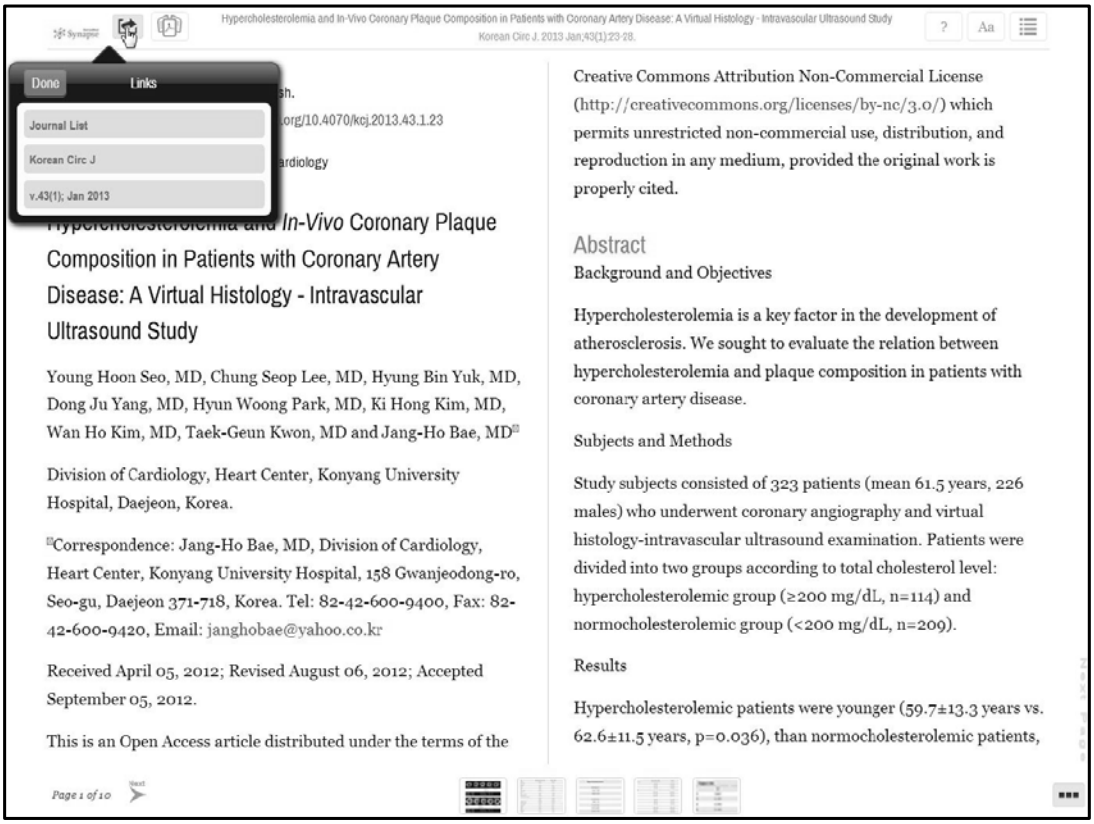
Subjects and Methods

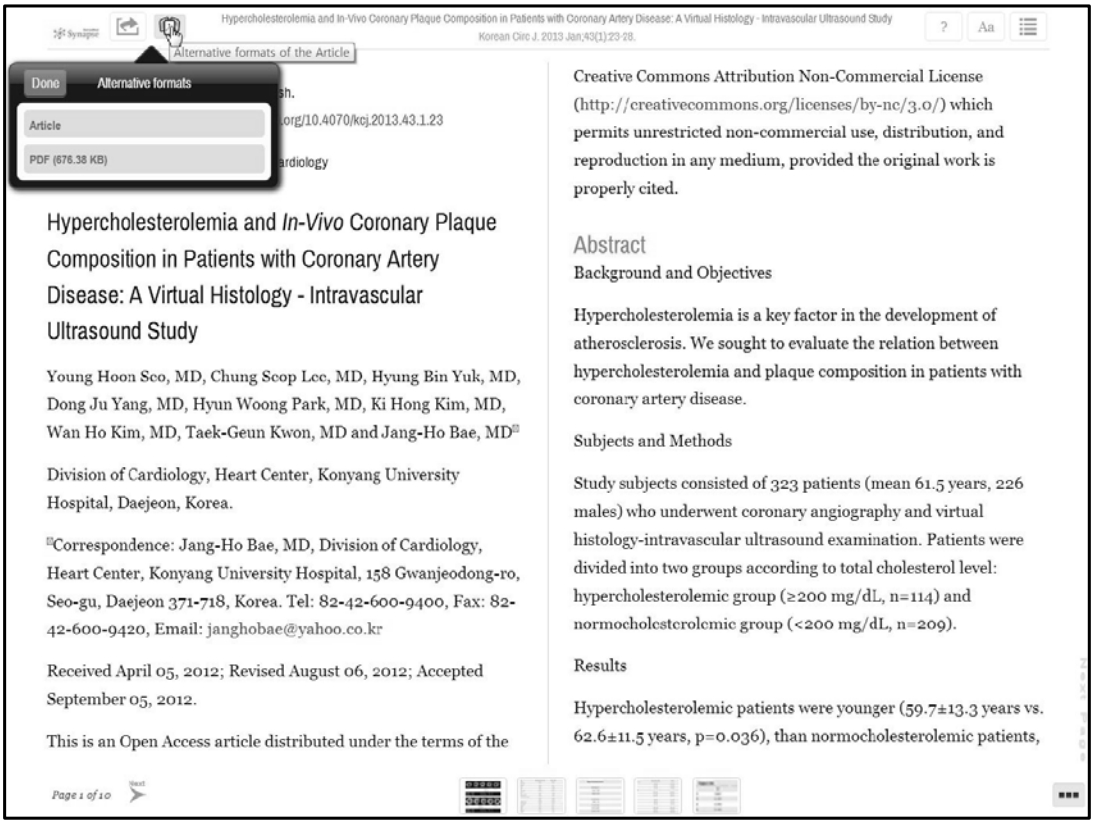
Study subjects consisted of 323 patients (mean 61.5 years, 226 males) who underwent coronary angiography and virtual histology-intravascular ultrasound examination. Patients were divided into two groups according to total cholesterol level: hypercholesterolemic group (≥200 mg/dL, n=114) and normocholesterolemic group (<200 mg/dL, n=209).

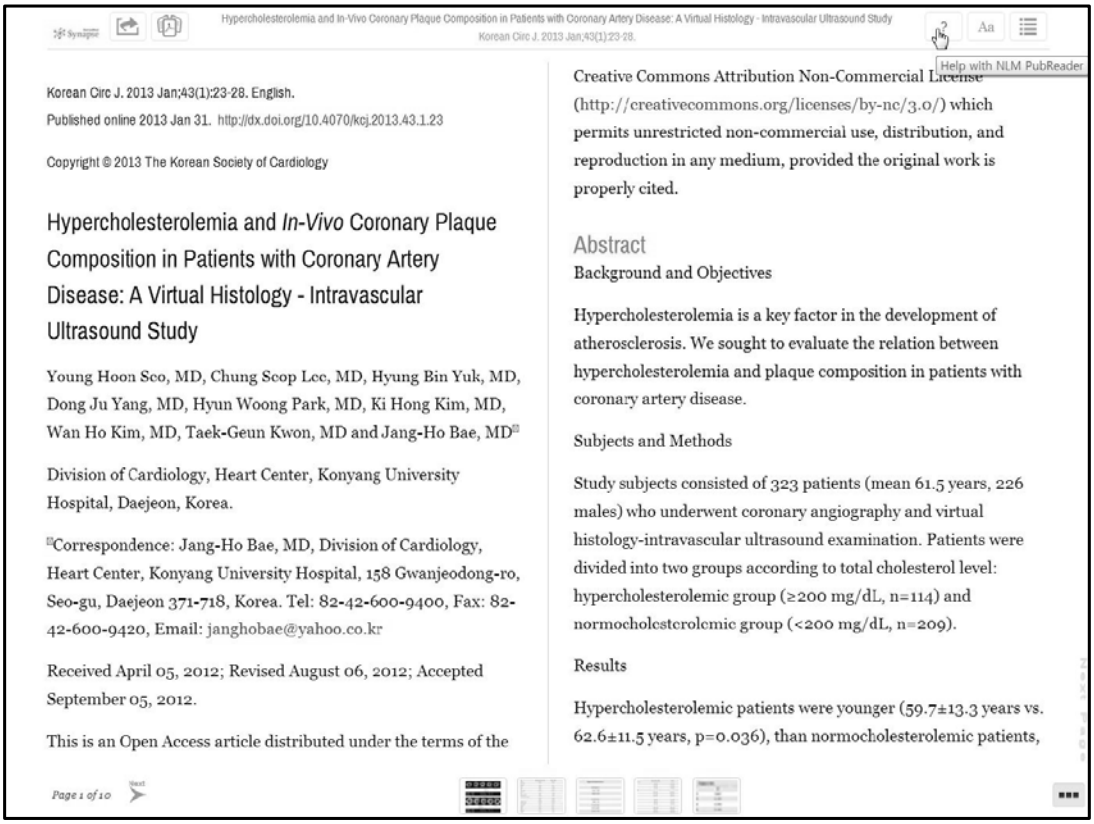
Results

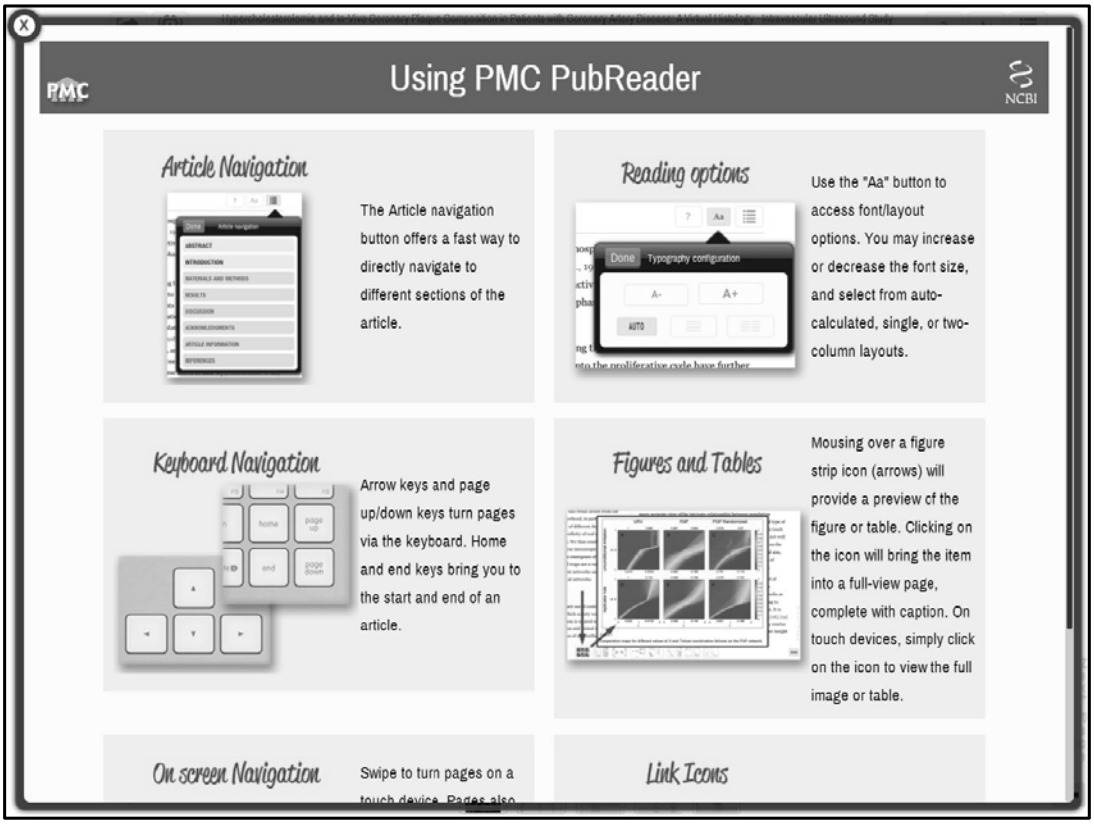
Hypercholesterolemic patients were younger (59.7±13.3 years vs. 62.6±11.5 years, p=0.036), than normocholesterolemic patients,

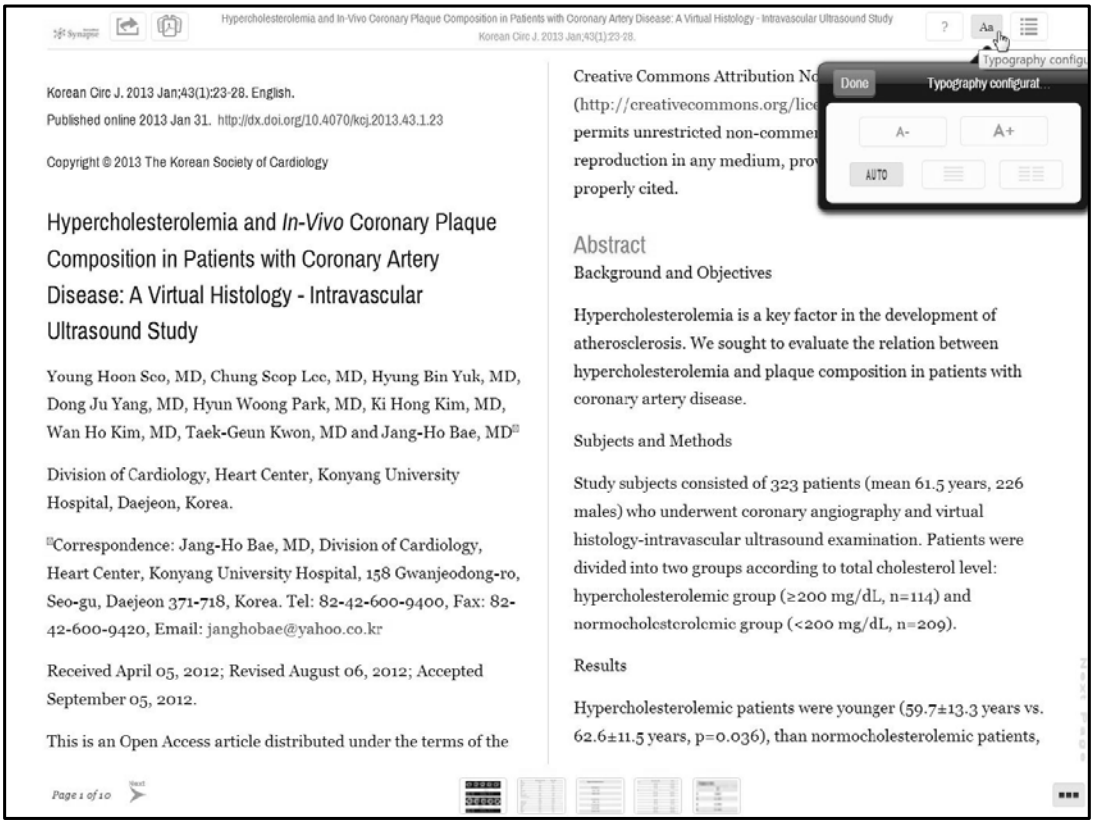

Hypercholesterolemia and In-Vivo Coronary Plaque Composition in Patients with Coronary Artery Disease: A Virtual Histology - Intravascular Ultrasound Study
Korean Circ J. 2013 Jan;43(1):23-28.
KoreaMed Synapse Home Page
Korean Circ J. 2013 Jan;43(1):23-28. English.
Published online 2013 Jan 31. http://dx.doi.org/10.4070/kcj.2013.43.1.23
Copyright © 2013 The Korean Society of Cardiology
Hypercholesterolemia and In-Vivo Coronary Plaque Composition in Patients with Coronary Artery Disease: A Virtual Histology - Intravascular Ultrasound Study
Young Hoon Seo, MD, Chung Seop Lee, MD, Hyung Bin Yuk, MD, Dong Ju Yang, MD, Hyun Woong Park, MD, Ki Hong Kim, MD, Wan Ho Kim, MD, Taek-Geun Kwon, MD and Jang-Ho Bae, MD
Division of Cardiology, Heart Center, Konyang University Hospital, Daejeon, Korea.
Correspondence: Jang-Ho Bae, MD, Division of Cardiology, Heart Center, Konyang University Hospital, 158 Gwanjeodong-ro, Seo-gu, Daejeon 371-718, Korea. Tel: 82-42-600-9400, Fax: 82-42-600-9420, Email: janghobae@yahoo.co.kr
Received April 05, 2012; Revised August 06, 2012; Accepted September 05, 2012.
This is an Open Access article distributed under the terms of the
Creative Commons Attribution Non-Commercial License (http://creativecommons.org/licenses/by-nc/3.0/) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.
Abstract
Background and Objectives
Hypercholesterolemia is a key factor in the development of atherosclerosis. We sought to evaluate the relation between hypercholesterolemia and plaque composition in patients with coronary artery disease.
Subjects and Methods
Study subjects consisted of 323 patients (mean 61.5 years, 226 males) who underwent coronary angiography and virtual histology-intravascular ultrasound examination. Patients were divided into two groups according to total cholesterol level: hypercholesterolemic group (≥200 mg/dL, n=114) and normocholesterolemic group (<200 mg/dL, n=209).
Results
Hypercholesterolemic patients were younger (59.7±13.3 years vs. 62.6±11.5 years, p=0.036), than normocholesterolemic patients,
Page 1 of 10
synapse.koreamed.org


Hypercholesterolemia and In-Vivo Coronary Plaque Composition in Patients with Coronary Artery Disease: A Virtual Histology - Intravascular Ultrasound Study
Korean Circ J. 2013 Jan;43(1):23-28.
Done
Links
Journal List
Korean Circ J
v.43(1); Jan 2013
Hypercholesterolemia and In-Vivo Coronary Plaque Composition in Patients with Coronary Artery Disease: A Virtual Histology - Intravascular Ultrasound Study
Young Hoon Seo, MD, Chung Seop Lee, MD, Hyung Bin Yuk, MD, Dong Ju Yang, MD, Hyun Woong Park, MD, Ki Hong Kim, MD, Wan Ho Kim, MD, Taek-Geun Kwon, MD and Jang-Ho Bae, MD
Division of Cardiology, Heart Center, Konyang University Hospital, Daejeon, Korea.
Correspondence: Jang-Ho Bae, MD, Division of Cardiology, Heart Center, Konyang University Hospital, 158 Gwanjeodong-ro, Seo-gu, Daejeon 371-718, Korea. Tel: 82-42-600-9400, Fax: 82-42-600-9420, Email: janghobae@yahoo.co.kr
Received April 05, 2012; Revised August 06, 2012; Accepted September 05, 2012.
This is an Open Access article distributed under the terms of the
Creative Commons Attribution Non-Commercial License (http://creativecommons.org/licenses/by-nc/3.0/) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.
Abstract
Background and Objectives
Hypercholesterolemia is a key factor in the development of atherosclerosis. We sought to evaluate the relation between hypercholesterolemia and plaque composition in patients with coronary artery disease.
Subjects and Methods
Study subjects consisted of 323 patients (mean 61.5 years, 226 males) who underwent coronary angiography and virtual histology-intravascular ultrasound examination. Patients were divided into two groups according to total cholesterol level: hypercholesterolemic group (≥200 mg/dL, n=114) and normocholesterolemic group (<200 mg/dL, n=209).
Results
Hypercholesterolemic patients were younger (59.7±13.3 years vs. 62.6±11.5 years, p=0.036), than normocholesterolemic patients,
Page 1 of 10


Hypercholesterolemia and In-Vivo Coronary Plaque Composition in Patients with Coronary Artery Disease: A Virtual Histology - Intravascular Ultrasound Study
Korean Circ J. 2013 Jan;43(1):23-28.
Alternative formats of the Article
Done
Alternative formats
Article
PDF (676.38 KB)
Hypercholesterolemia and In-Vivo Coronary Plaque Composition in Patients with Coronary Artery Disease: A Virtual Histology - Intravascular Ultrasound Study
Young Hoon Seo, MD, Chung Scop Lee, MD, Hyung Bin Yuk, MD, Dong Ju Yang, MD, Hyun Woong Park, MD, Ki Hong Kim, MD, Wan Ho Kim, MD, Taek-Geun Kwon, MD and Jang-Ho Bae, MD
Division of Cardiology, Heart Center, Konyang University Hospital, Daejeon, Korea.
Correspondence: Jang-Ho Bae, MD, Division of Cardiology, Heart Center, Konyang University Hospital, 158 Gwanjeodong-ro, Seo-gu, Daejeon 371-718, Korea. Tel: 82-42-600-9400, Fax: 82-42-600-9420, Email: janghobae@yahoo.co.kr
Received April 05, 2012; Revised August 06, 2012; Accepted September 05, 2012.
This is an Open Access article distributed under the terms of the
Creative Commons Attribution Non-Commercial License (http://creativecommons.org/licenses/by-nc/3.0/) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.
Abstract
Background and Objectives
Hypercholesterolemia is a key factor in the development of atherosclerosis. We sought to evaluate the relation between hypercholesterolemia and plaque composition in patients with coronary artery disease.
Subjects and Methods
Study subjects consisted of 323 patients (mean 61.5 years, 226 males) who underwent coronary angiography and virtual histology-intravascular ultrasound examination. Patients were divided into two groups according to total cholesterol level: hypercholesterolemic group (≥200 mg/dL, n=114) and normocholesterolemic group (<200 mg/dL, n=209).
Results
Hypercholesterolemic patients were younger (59.7±13.3 years vs. 62.6±11.5 years, p=0.036), than normocholesterolemic patients,
Page 1 of 10


Hypercholesterolemia and In-Vivo Coronary Plaque Composition in Patients with Coronary Artery Disease: A Virtual Histology - Intravascular Ultrasound Study
Korean Circ J. 2013 Jan;43(1):23-28.
Help with NLM PubReader
Korean Circ J. 2013 Jan;43(1):23-28. English.
Published online 2013 Jan 31. http://dx.doi.org/10.4070/kcj.2013.43.1.23
Copyright © 2013 The Korean Society of Cardiology
Hypercholesterolemia and In-Vivo Coronary Plaque Composition in Patients with Coronary Artery Disease: A Virtual Histology - Intravascular Ultrasound Study
Young Hoon Seo, MD, Chung Scop Lee, MD, Hyung Bin Yuk, MD, Dong Ju Yang, MD, Hyun Woong Park, MD, Ki Hong Kim, MD, Wan Ho Kim, MD, Taek-Geun Kwon, MD and Jang-Ho Bae, MD
Division of Cardiology, Heart Center, Konyang University Hospital, Daejeon, Korea.
Correspondence: Jang-Ho Bae, MD, Division of Cardiology, Heart Center, Konyang University Hospital, 158 Gwanjeodong-ro, Seo-gu, Daejeon 371-718, Korea. Tel: 82-42-600-9400, Fax: 82-42-600-9420, Email: janghobae@yahoo.co.kr
Received April 05, 2012; Revised August 06, 2012; Accepted September 05, 2012.
This is an Open Access article distributed under the terms of the
Creative Commons Attribution Non-Commercial License (http://creativecommons.org/licenses/by-nc/3.0/) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.
Abstract
Background and Objectives
Hypercholesterolemia is a key factor in the development of atherosclerosis. We sought to evaluate the relation between hypercholesterolemia and plaque composition in patients with coronary artery disease.
Subjects and Methods
Study subjects consisted of 323 patients (mean 61.5 years, 226 males) who underwent coronary angiography and virtual histology-intravascular ultrasound examination. Patients were divided into two groups according to total cholesterol level: hypercholesterolemic group (≥200 mg/dL, n=114) and normocholesterolemic group (<200 mg/dL, n=209).
Results
Hypercholesterolemic patients were younger (59.7±13.3 years vs. 62.6±11.5 years, p=0.036), than normocholesterolemic patients,
Page 1 of 10





Korean Circ J. 2013 Jan;43(1):23-28. English.
Published online 2013 Jan 31. http://dx.doi.org/10.4070/kcj.2013.43.1.23

Copyright © 2013 The Korean Society of Cardiology

Hypercholesterolemia and *In-Vivo* Coronary Plaque Composition in Patients with Coronary Artery Disease: A Virtual Histology - Intravascular Ultrasound Study

Young Hoon Seo, MD, Chung Scop Lee, MD, Hyung Bin Yuk, MD, Dong Ju Yang, MD, Hyun Woong Park, MD, Ki Hong Kim, MD, Wan Ho Kim, MD, Taek-Geun Kwon, MD and Jang-Ho Bae, MD

Division of Cardiology, Heart Center, Konyang University Hospital, Daejeon, Korea.

Correspondence: Jang-Ho Bae, MD, Division of Cardiology, Heart Center, Konyang University Hospital, 158 Gwanjeodong-ro, Seo-gu, Daejeon 371-718, Korea. Tel: 82-42-600-9400, Fax: 82-42-600-9420, Email: janghobae@yahoo.co.kr

Received April 05, 2012; Revised August 06, 2012; Accepted September 05, 2012.

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non (http://creativecommons.org/lic permits unrestricted non-comme reproduction in any medium, pro properly cited.

Abstract

Background and Objectives

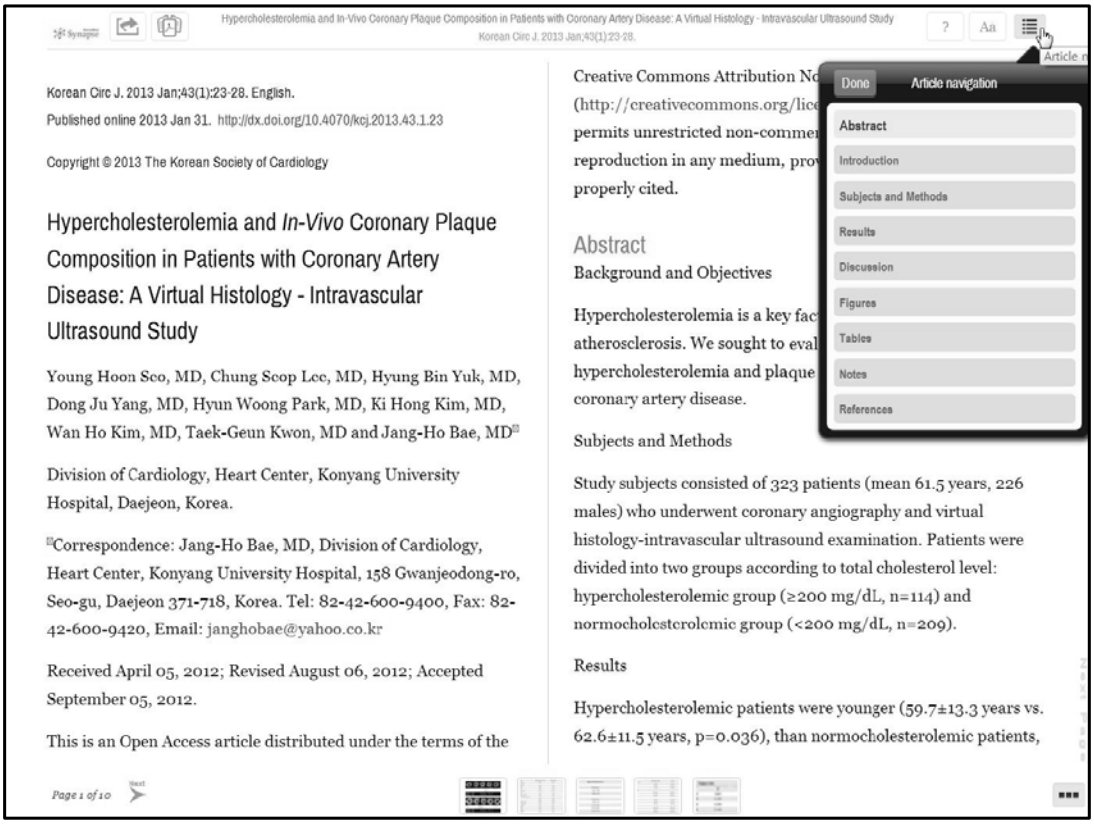
Hypercholesterolemia is a key factor in the development of atherosclerosis. We sought to evaluate the relation between hypercholesterolemia and plaque composition in patients with coronary artery disease.

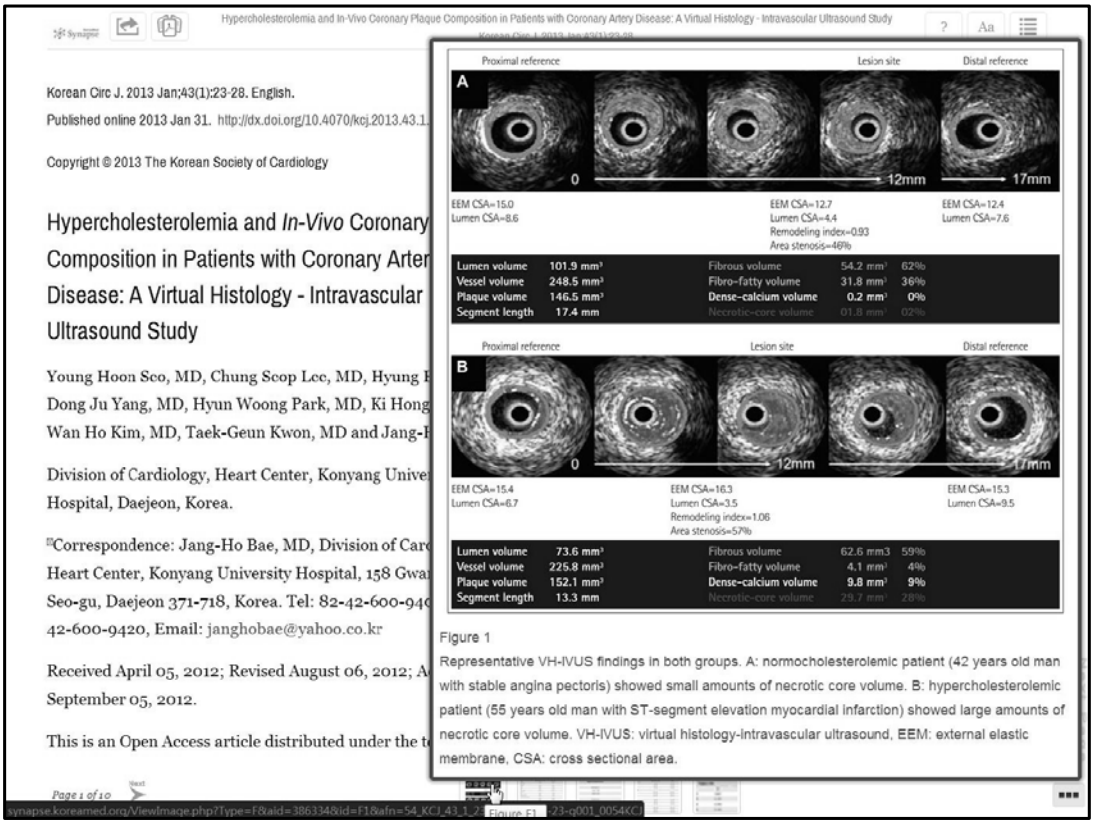
Subjects and Methods

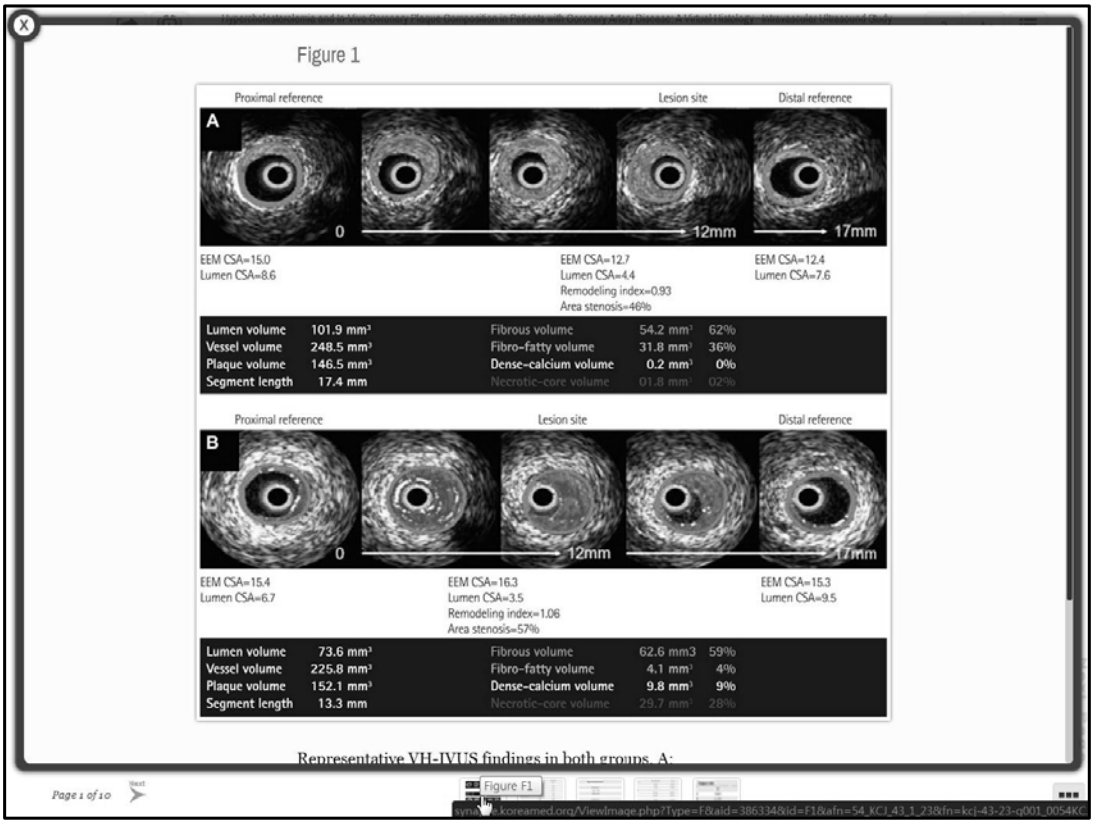
Study subjects consisted of 323 patients (mean 61.5 years, 226 males) who underwent coronary angiography and virtual histology-intravascular ultrasound examination. Patients were divided into two groups according to total cholesterol level: hypercholesterolemic group (≥200 mg/dL, n=114) and normocholesterolemic group (<200 mg/dL, n=209).

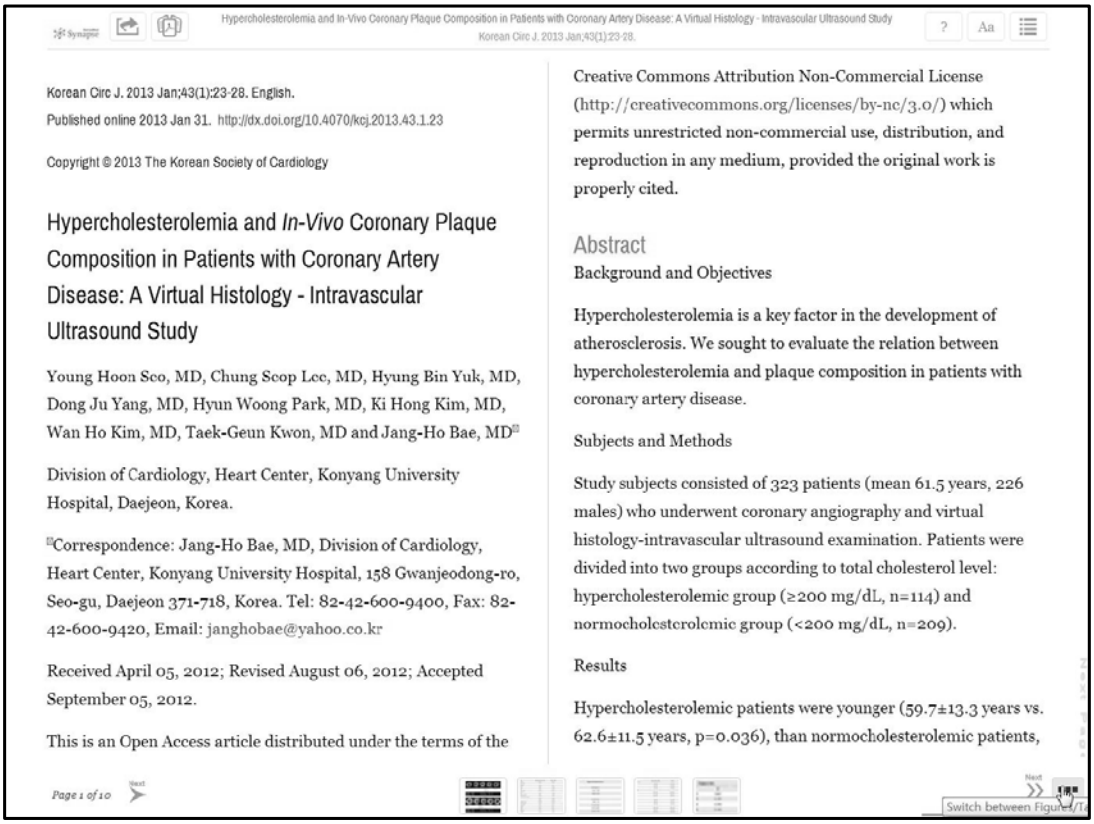
Results

Hypercholesterolemic patients were younger (59.7±13.3 years vs. 62.6±11.5 years, p=0.036), than normocholesterolemic patients,


Hypercholesterolemia and In-Vivo Coronary Plaque Composition in Patients with Coronary Artery Disease: A Virtual Histology - Intravascular Ultrasound Study
Korean Circ J. 2013 Jan;43(1):23-28.
Done
Article navigation
Abstract
Introduction
Subjects and Methods
Results
Discussion
Figures
Tables
Notes
References
Korean Circ J. 2013 Jan;43(1):23-28. English.
Published online 2013 Jan 31. http://dx.doi.org/10.4070/kcj.2013.43.1.23
Copyright © 2013 The Korean Society of Cardiology
Hypercholesterolemia and In-Vivo Coronary Plaque Composition in Patients with Coronary Artery Disease: A Virtual Histology - Intravascular Ultrasound Study
Young Hoon Seo, MD, Chung Scop Lee, MD, Hyung Bin Yuk, MD, Dong Ju Yang, MD, Hyun Woong Park, MD, Ki Hong Kim, MD, Wan Ho Kim, MD, Taek-Geun Kwon, MD and Jang-Ho Bae, MD
Division of Cardiology, Heart Center, Konyang University Hospital, Daejeon, Korea.
Correspondence: Jang-Ho Bae, MD, Division of Cardiology, Heart Center, Konyang University Hospital, 158 Gwanjeodong-ro, Seo-gu, Daejeon 371-718, Korea. Tel: 82-42-600-9400, Fax: 82-42-600-9420, Email: janghobae@yahoo.co.kr
Received April 05, 2012; Revised August 06, 2012; Accepted September 05, 2012.
This is an Open Access article distributed under the terms of the
Creative Commons Attribution
(http://creativecommons.org/
permits unrestricted non-
reproduction in any medium,
properly cited.
Abstract
Background and Objectives
Hypercholesterolemia is a key
atherosclerosis. We sought to
hypercholesterolemia and plaque
coronary artery disease.
Subjects and Methods
Study subjects consisted of 323 patients (mean 61.5 years, 226 males) who underwent coronary angiography and virtual histology-intravascular ultrasound examination. Patients were divided into two groups according to total cholesterol level: hypercholesterolemic group (≥200 mg/dL, n=114) and normocholesterolemic group (<200 mg/dL, n=209).
Results
Hypercholesterolemic patients were younger (59.7±13.3 years vs. 62.6±11.5 years, p=0.036), than normocholesterolemic patients,
Page 1 of 10


Hypercholesterolemia and In-Vivo Coronary Plaque Composition in Patients with Coronary Artery Disease: A Virtual Histology - Intravascular Ultrasound Study
Korean Circ J. 2013 Jan;43(1):23-28. English.
Published online 2013 Jan 31.
Copyright © 2013 The Korean Society of Cardiology
Hypercholesterolemia and In-Vivo Coronary
Composition in Patients with Coronary Arter
Disease: A Virtual Histology - Intravascular
Ultrasound Study
Young Hoon Seo, MD, Chung Scop Lee, MD, Hyung
Dong Ju Yang, MD, Hyun Woong Park, MD, Ki Hong
Wan Ho Kim, MD, Taek-Geun Kwon, MD and Jang-
Division of Cardiology, Heart Center, Konyang Unive
Hospital, Daejeon, Korea.
Correspondence: Jang-Ho Bae, MD, Division of Car
Heart Center, Konyang University Hospital, 158 Gwa
Seo-gu, Daejeon 371-718, Korea. Tel: 82-42-600-94
42-600-9420, Email: janghobae@yahoo.co.kr
Received April 05, 2012; Revised August 06, 2012; A
September 05, 2012.
This is an Open Access article distributed under the t
Proximal reference
Lesion site
Distal reference
A
0
12mm
17mm
EEM CSA=15.0
Lumen CSA=8.6
EEM CSA=12.7
Lumen CSA=4.4
Remodeling index=0.93
Area stenosis=46%
EEM CSA=12.4
Lumen CSA=7.6
Lumen volume 101.9 mm³
Vessel volume 248.5 mm³
Plaque volume 146.5 mm³
Segment length 17.4 mm
Fibrous volume 54.2 mm³ 62%
Fibro-fatty volume 31.8 mm³ 36%
Dense-calcium volume 0.2 mm³ 0%
Necrotic-core volume 01.8 mm³ 02%
Proximal reference
Lesion site
Distal reference
B
0
12mm
17mm
EEM CSA=15.4
Lumen CSA=6.7
EEM CSA=16.3
Lumen CSA=3.5
Remodeling index=1.06
Area stenosis=57%
EEM CSA=15.3
Lumen CSA=9.5
Lumen volume 73.6 mm³
Vessel volume 225.8 mm³
Plaque volume 152.1 mm³
Segment length 13.3 mm
Fibrous volume 62.6 mm3 59%
Fibro-fatty volume 4.1 mm³ 4%
Dense-calcium volume 9.8 mm³ 9%
Necrotic-core volume 29.7 mm³ 28%
Figure 1
Representative VH-IVUS findings in both groups. A: normocholesterolemic patient (42 years old man with stable angina pectoris) showed small amounts of necrotic core volume. B: hypercholesterolemic patient (55 years old man with ST-segment elevation myocardial infarction) showed large amounts of necrotic core volume. VH-IVUS: virtual histology-intravascular ultrasound, EEM: external elastic membrane, CSA: cross sectional area.
Page 1 of 10





Korean Circ J. 2013 Jan;43(1):23-28. English.
Published online 2013 Jan 31. http://dx.doi.org/10.4070/kcj.2013.43.1.23

Copyright © 2013 The Korean Society of Cardiology

Hypercholesterolemia and *In-Vivo* Coronary Plaque Composition in Patients with Coronary Artery Disease: A Virtual Histology - Intravascular Ultrasound Study

Young Hoon Seo, MD, Chung Scop Lee, MD, Hyung Bin Yuk, MD, Dong Ju Yang, MD, Hyun Woong Park, MD, Ki Hong Kim, MD, Wan Ho Kim, MD, Taek-Geun Kwon, MD and Jang-Ho Bae, MD

Division of Cardiology, Heart Center, Konyang University Hospital, Daejeon, Korea.

Correspondence: Jang-Ho Bae, MD, Division of Cardiology, Heart Center, Konyang University Hospital, 158 Gwanjeodong-ro, Seo-gu, Daejeon 371-718, Korea. Tel: 82-42-600-9400, Fax: 82-42-600-9420, Email: janghobae@yahoo.co.kr

Received April 05, 2012; Revised August 06, 2012; Accepted September 05, 2012.

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (http://creativecommons.org/licenses/by-nc/3.0/) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

Abstract

Background and Objectives

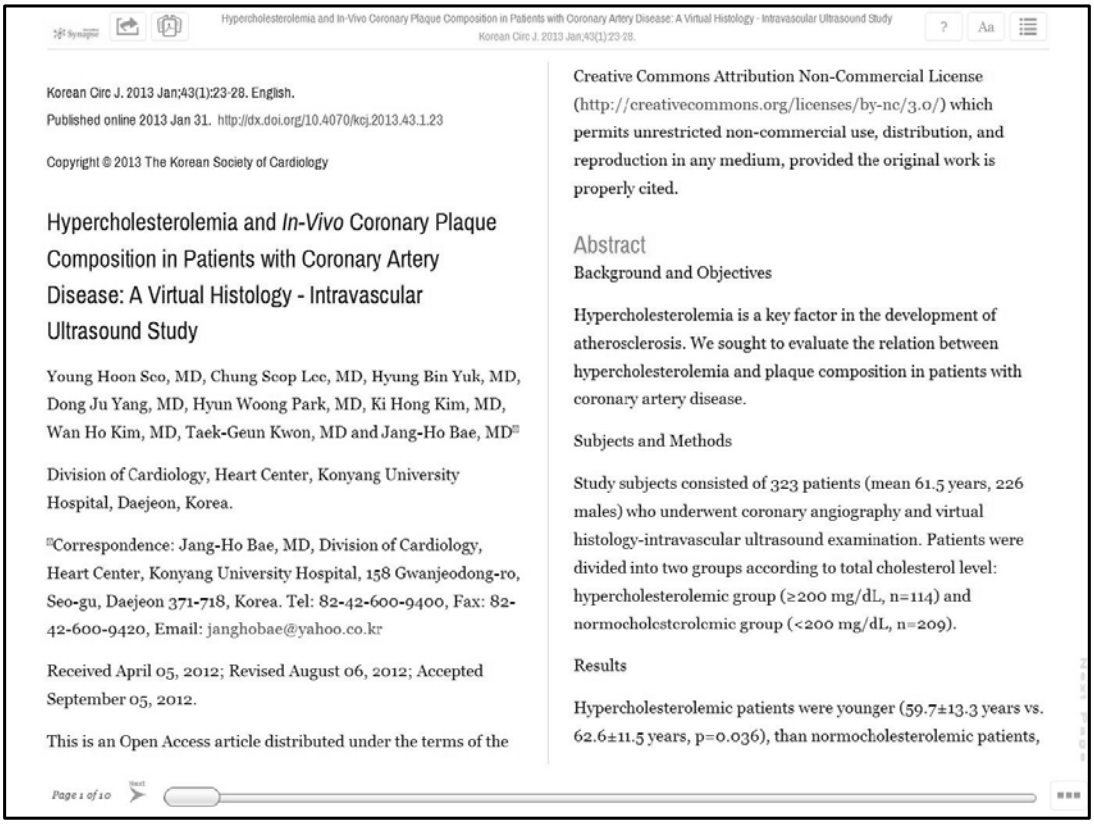
Hypercholesterolemia is a key factor in the development of atherosclerosis. We sought to evaluate the relation between hypercholesterolemia and plaque composition in patients with coronary artery disease.

Subjects and Methods

Study subjects consisted of 323 patients (mean 61.5 years, 226 males) who underwent coronary angiography and virtual histology-intravascular ultrasound examination. Patients were divided into two groups according to total cholesterol level: hypercholesterolemic group (≥200 mg/dL, n=114) and normocholesterolemic group (<200 mg/dL, n=209).

Results

Hypercholesterolemic patients were younger (59.7±13.3 years vs. 62.6±11.5 years, p=0.036), than normocholesterolemic patients,



Hypercholesterolemia and In-Vivo Coronary Plaque Composition in Patients with Coronary Artery Disease: A Virtual Histology - Intravascular Ultrasound Study
Korean Circ J. 2013 Jan;43(1):23-28.

Korean Circ J. 2013 Jan;43(1):23-28. English.
Published online 2013 Jan 31. http://dx.doi.org/10.4070/kcj.2013.43.1.23

Copyright © 2013 The Korean Society of Cardiology

Hypercholesterolemia and *In-Vivo* Coronary Plaque Composition in Patients with Coronary Artery Disease: A Virtual Histology - Intravascular Ultrasound Study

Young Hoon Seo, MD, Chung Seop Lee, MD, Hyung Bin Yuk, MD, Dong Ju Yang, MD, Hyun Woong Park, MD, Ki Hong Kim, MD, Wan Ho Kim, MD, Taek-Geun Kwon, MD and Jang-Ho Bae, MD

Division of Cardiology, Heart Center, Konyang University Hospital, Daejeon, Korea.

Correspondence: Jang-Ho Bae, MD, Division of Cardiology, Heart Center, Konyang University Hospital, 158 Gwanjeodong-ro, Seo-gu, Daejeon 371-718, Korea. Tel: 82-42-600-9400, Fax: 82-42-600-9420, Email: janghobae@yahoo.co.kr

Received April 05, 2012; Revised August 06, 2012; Accepted September 05, 2012.

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (http://creativecommons.org/licenses/by-nc/3.0/) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

Abstract

Background and Objectives

Hypercholesterolemia is a key factor in the development of atherosclerosis. We sought to evaluate the relation between hypercholesterolemia and plaque composition in patients with coronary artery disease.

Subjects and Methods

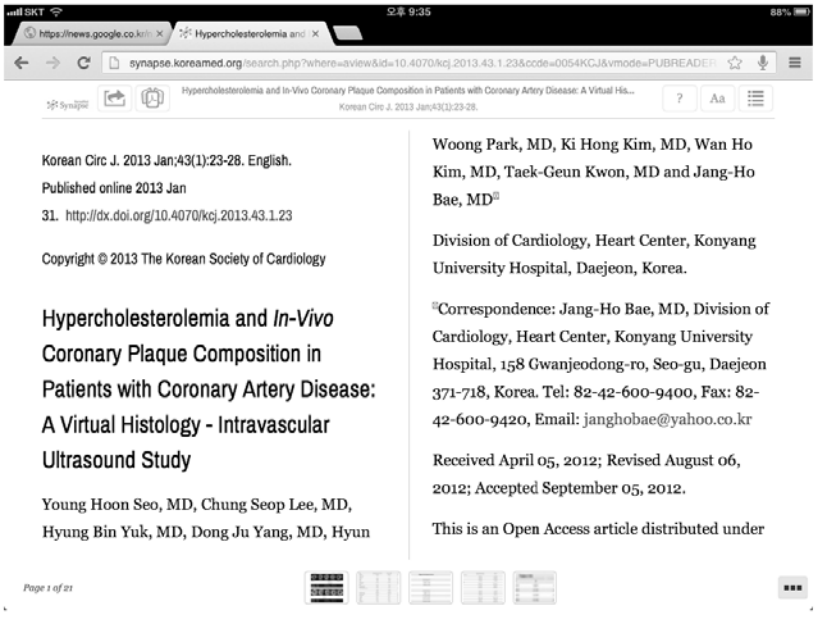
Study subjects consisted of 323 patients (mean 61.5 years, 226 males) who underwent coronary angiography and virtual histology-intravascular ultrasound examination. Patients were divided into two groups according to total cholesterol level: hypercholesterolemic group (≥200 mg/dL, n=114) and normocholesterolemic group (<200 mg/dL, n=209).

Results

Hypercholesterolemic patients were younger (59.7±13.3 years vs. 62.6±11.5 years, p=0.036), than normocholesterolemic patients,

Page 1 of 10

PubReader in tablets



SKT 오후 9:35 88%
https://news.google.co.kr/h Hypercholesterolemia and
synapse.koreamed.org/search.php?where=aview&id=10.4070/kcj.2013.43.1.23&code=0054KCJ&vmode=PUBREADER
Hypercholesterolemia and In-Vivo Coronary Plaque Composition in Patients with Coronary Artery Disease: A Virtual His...
Korean Circ J. 2013 Jan;43(1):23-28.

Korean Circ J. 2013 Jan;43(1):23-28. English.
Published online 2013 Jan 31. http://dx.doi.org/10.4070/kcj.2013.43.1.23

Copyright © 2013 The Korean Society of Cardiology

Hypercholesterolemia and *In-Vivo* Coronary Plaque Composition in Patients with Coronary Artery Disease: A Virtual Histology - Intravascular Ultrasound Study

Young Hoon Seo, MD, Chung Seop Lee, MD, Hyung Bin Yuk, MD, Dong Ju Yang, MD, Hyun Woong Park, MD, Ki Hong Kim, MD, Wan Ho Kim, MD, Taek-Geun Kwon, MD and Jang-Ho Bae, MD

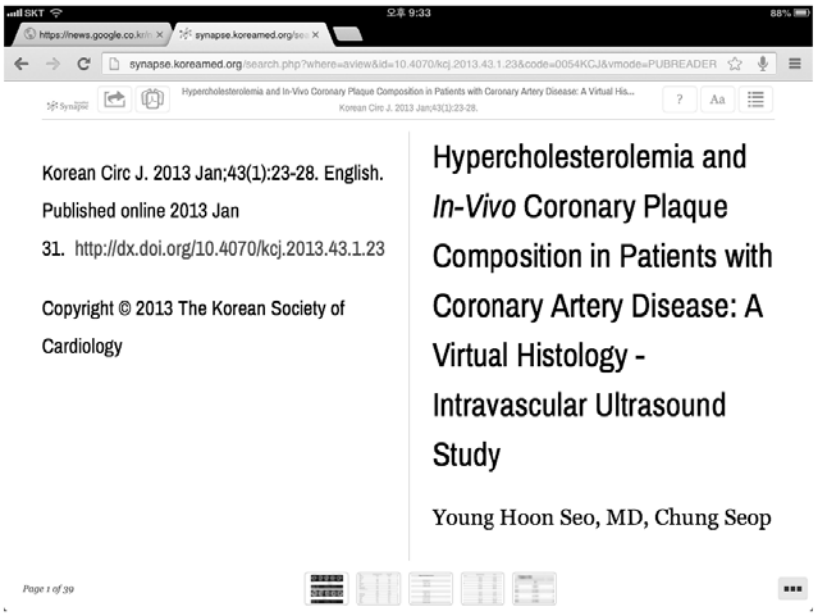
Division of Cardiology, Heart Center, Konyang University Hospital, Daejeon, Korea.

Correspondence: Jang-Ho Bae, MD, Division of Cardiology, Heart Center, Konyang University Hospital, 158 Gwanjeodong-ro, Seo-gu, Daejeon 371-718, Korea. Tel: 82-42-600-9400, Fax: 82-42-600-9420, Email: janghobae@yahoo.co.kr

Received April 05, 2012; Revised August 06, 2012; Accepted September 05, 2012.

This is an Open Access article distributed under

Page 1 of 21



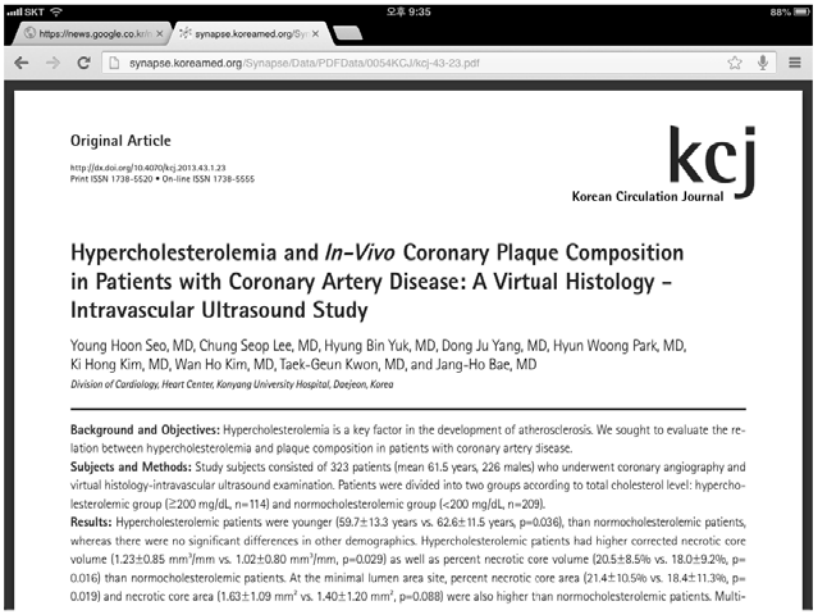
Korean Circ J. 2013 Jan;43(1):23-28. English.
Published online 2013 Jan
31. http://dx.doi.org/10.4070/kcj.2013.43.1.23

Copyright © 2013 The Korean Society of Cardiology

Hypercholesterolemia and *In-Vivo* Coronary Plaque Composition in Patients with Coronary Artery Disease: A Virtual Histology - Intravascular Ultrasound Study

Young Hoon Seo, MD, Chung Seop

PDF in tablets



Original Article

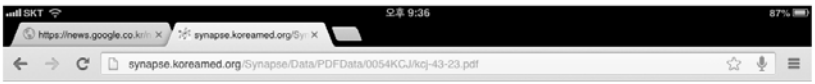
http://dx.doi.org/10.4070/kcj.2013.43.1.23
Print ISSN 1738-5520 • On-line ISSN 1738-5555

kcj
Korean Circulation Journal

Hypercholesterolemia and *In-Vivo* Coronary Plaque Composition in Patients with Coronary Artery Disease: A Virtual Histology – Intravascular Ultrasound Study

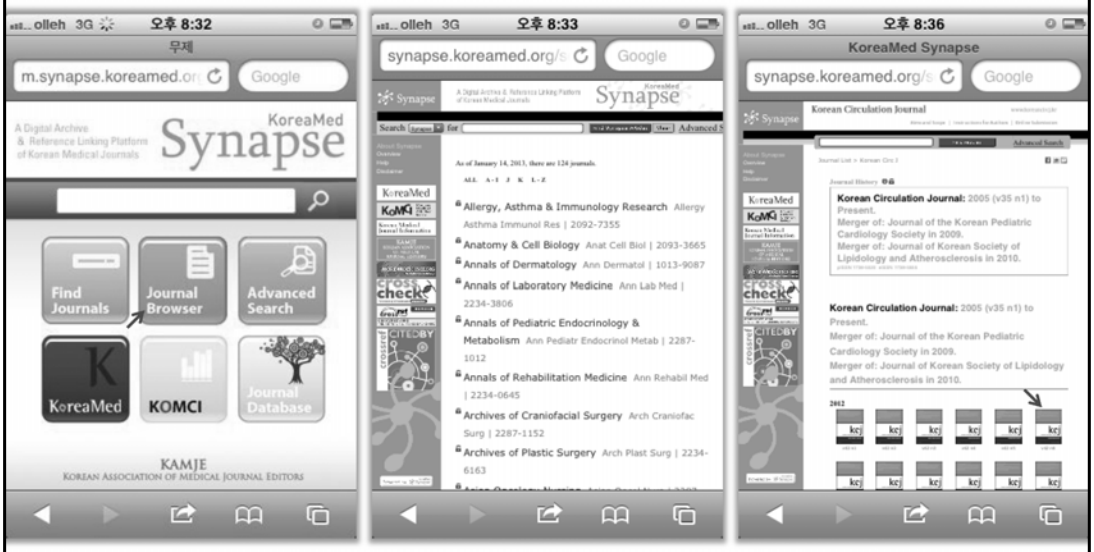
Young Hoon Seo, MD, Chung Seop Lee, MD, Hyung Bin Yuk, MD, Dong Ju Yang, MD, Hyun Woong Park, MD, Ki Hong Kim, MD, Wan Ho Kim, MD, Taek-Geun Kwon, MD, and Jang-Ho Bae, MD
Division of Cardiology, Heart Center, Konyang University Hospital, Daejeon, Korea

Background and Objectives: Hypercholesterolemia is a key factor in the development of atherosclerosis. We sought to evaluate the relation between hypercholesterolemia and plaque composition in patients with coronary artery disease.
Subjects and Methods: Study subjects consisted of 323 patients (mean 61.5 years, 226 males) who underwent coronary angiography and virtual histology-intravascular ultrasound examination. Patients were divided into two groups according to total cholesterol level: hypercholesterolemic group (≥200 mg/dL, n=114) and normocholesterolemic group (<200 mg/dL, n=209).
Results: Hypercholesterolemic patients were younger (59.7±13.3 years vs. 62.6±11.5 years, p=0.036), than normocholesterolemic patients, whereas there were no significant differences in other demographics. Hypercholesterolemic patients had higher corrected necrotic core volume (1.23±0.85 mm^3/mm vs. 1.02±0.80 mm^3/mm, p=0.029) as well as percent necrotic core volume (20.5±8.5% vs. 18.0±9.2%, p=0.016) than normocholesterolemic patients. At the minimal lumen area site, percent necrotic core area (21.4±10.5% vs. 18.4±11.3%, p=0.019) and necrotic core area (1.63±1.09 mm^2 vs. 1.40±1.20 mm^2, p=0.088) were also higher than normocholesterolemic patients. Multi-

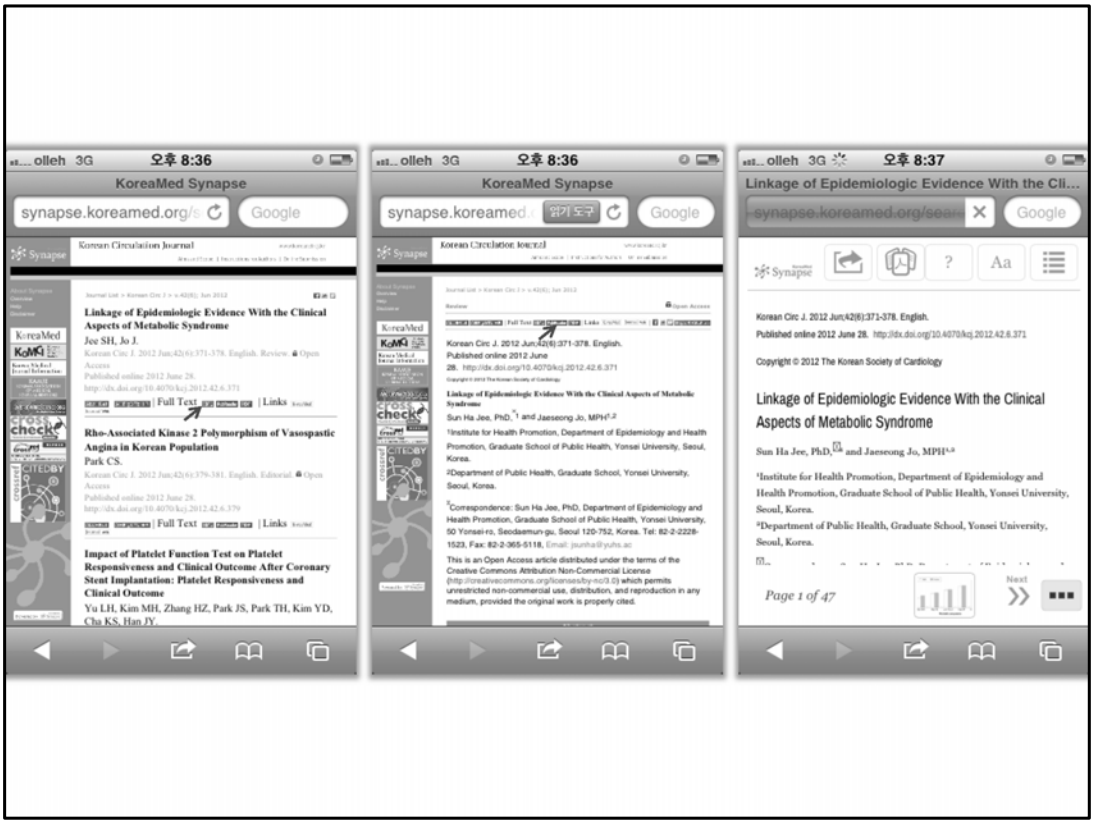


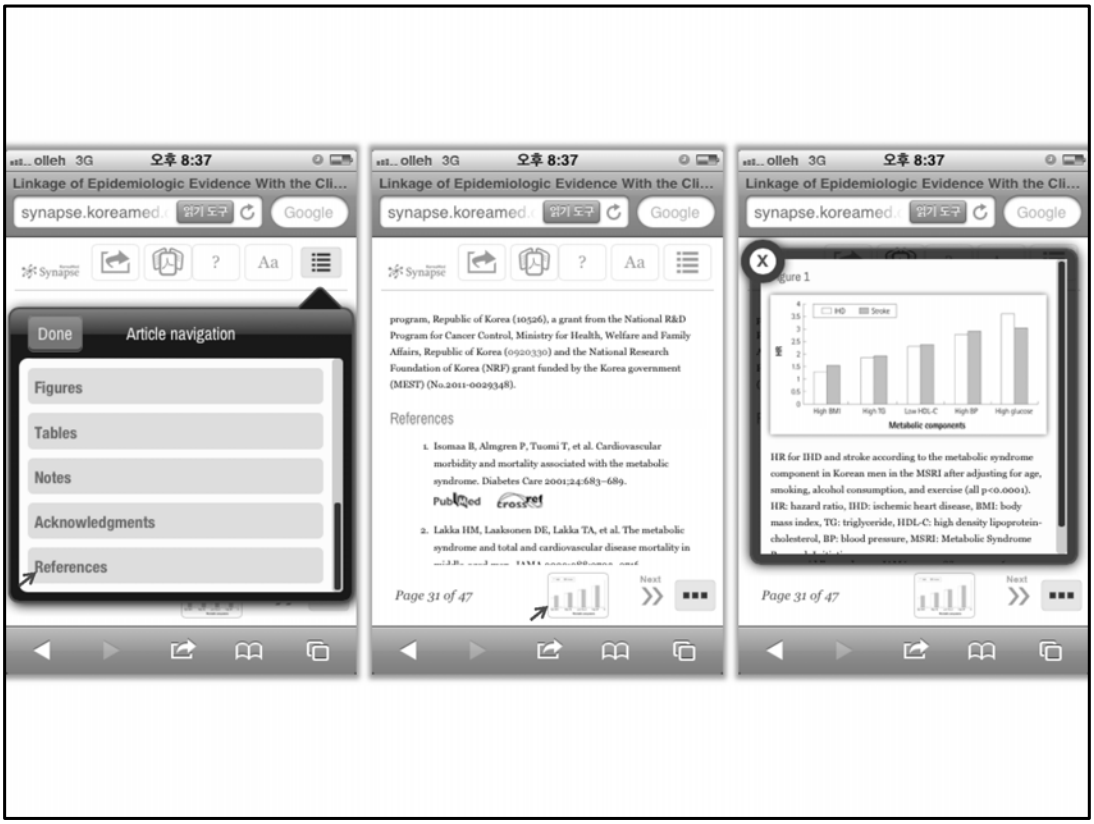
Background and Objectives: Hypercholesterolemia is a key factor in the developr
lation between hypercholesterolemia and plaque composition in patients with coro
Subjects and Methods: Study subjects consisted of 323 patients (mean 61.5 years,
virtual histology-intravascular ultrasound examination. Patients were divided into tw
lesterolemic group (≥200 mg/dL, n=114) and normocholesterolemic group (<200 m
Results: Hypercholesterolemic patients were younger (59.7±13.3 years vs. 62.6±11.
whereas there were no significant differences in other demographics. Hypercholes
volume (1.23±0.85 mm^3/mm vs. 1.02±0.80 mm^3/mm, p=0.029) as well as percent
0.016) than normocholesterolemic patients. At the minimal lumen area site, percer
0.019) and necrotic core area (1.63±1.09 mm^2 vs. 1.40±1.20 mm^2, p=0.088) were a
variate linear regression analysis showed that total cholesterol level was an indepen
prit lesion after being adjusted with age, high density lipoprotein-cholesterol , hyp
nary syndrome (beta 0.027, 95% confidence interval 0.02-0.053, p=0.037).
Conclusion: Hypercholesterolemia was associated with increased necrotic core volu

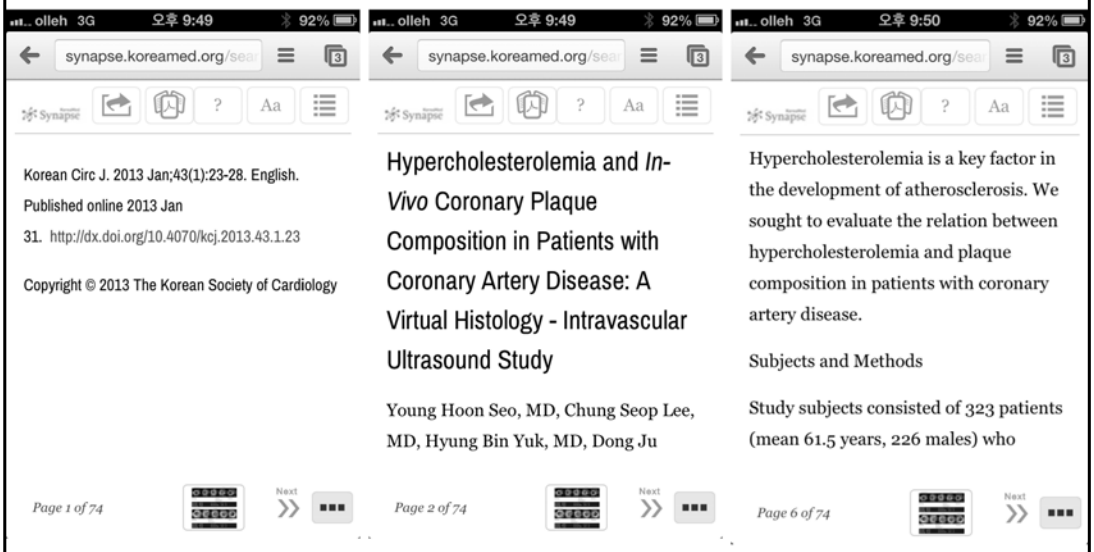
PubReader in mobile phones



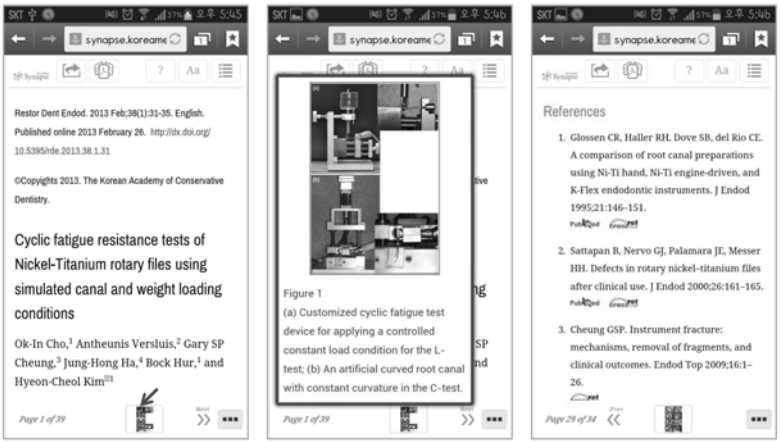
Safari, iPhone


olleh 3G 오후 8:36
KoreaMed Synapse
synapse.koreamed.org/s
Google
Korean Circulation Journal
Linkage of Epidemiologic Evidence With the Clinical Aspects of Metabolic Syndrome
Jee SH, Jo J.
Full Text | Links
Rho-Associated Kinase 2 Polymorphism of Vasospastic Angina in Korean Population
Park CS.
Full Text | Links
Impact of Platelet Function Test on Platelet Responsiveness and Clinical Outcome After Coronary Stent Implantation: Platelet Responsiveness and Clinical Outcome
Yu LH, Kim MH, Zhang HZ, Park JS, Park TH, Kim YD, Cha KS, Han JY.
olleh 3G 오후 8:36
KoreaMed Synapse
synapse.koreamed.org/s
읽기 도구
Google
Korean Circulation Journal
Linkage of Epidemiologic Evidence With the Clinical Aspects of Metabolic Syndrome
Sun Ha Jee, PhD,[1] and Jaeseong Jo, MPH[1,2]
olleh 3G 오후 8:37
Linkage of Epidemiologic Evidence With the Cli...
synapse.koreamed.org/sear
Google
Korean Circ J. 2012 Jun;42(6):371-378. English.
Published online 2012 June 28. http://dx.doi.org/10.4070/kcj.2012.42.6.371
Copyright © 2012 The Korean Society of Cardiology
Linkage of Epidemiologic Evidence With the Clinical Aspects of Metabolic Syndrome
Sun Ha Jee, PhD,[1] and Jaeseong Jo, MPH[1,2]
[1]Institute for Health Promotion, Department of Epidemiology and Health Promotion, Graduate School of Public Health, Yonsei University, Seoul, Korea.
[2]Department of Public Health, Graduate School, Yonsei University, Seoul, Korea.
Page 1 of 47
Next


olleh 3G 오후 8:37
Linkage of Epidemiologic Evidence With the Cli...
synapse.koreamed.org/s
읽기 도구
Google
Done
Article navigation
Figures
Tables
Notes
Acknowledgments
References
olleh 3G 오후 8:37
Linkage of Epidemiologic Evidence With the Cli...
synapse.koreamed.org/s
읽기 도구
Google
program, Republic of Korea (10526), a grant from the National R&D Program for Cancer Control, Ministry for Health, Welfare and Family Affairs, Republic of Korea (0920330) and the National Research Foundation of Korea (NRF) grant funded by the Korea government (MEST) (No.2011-0029348).
References
1. Isomaa B, Almgren P, Tuomi T, et al. Cardiovascular morbidity and mortality associated with the metabolic syndrome. Diabetes Care 2001;24:683-689.
2. Lakka HM, Laaksonen DE, Lakka TA, et al. The metabolic syndrome and total and cardiovascular disease mortality in
Page 31 of 47
Next
olleh 3G 오후 8:37
Linkage of Epidemiologic Evidence With the Cli...
synapse.koreamed.org/s
읽기 도구
Google
Figure 1
IHD
Stroke
High BMI
High TG
Low HDL-C
High BP
High glucose
Metabolic components
HR for IHD and stroke according to the metabolic syndrome component in Korean men in the MSRI after adjusting for age, smoking, alcohol consumption, and exercise (all p<0.0001). HR: hazard ratio, IHD: ischemic heart disease, BMI: body mass index, TG: triglyceride, HDL-C: high density lipoprotein-cholesterol, BP: blood pressure, MSRI: Metabolic Syndrome
Page 31 of 47
Next

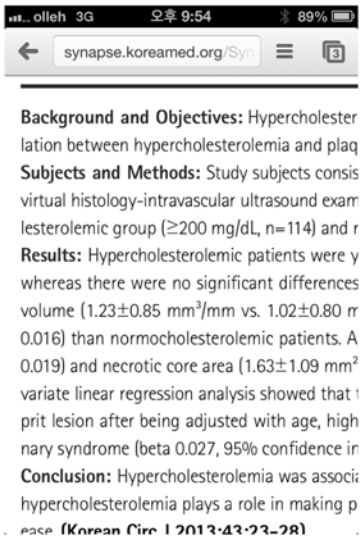


Google Chrome, iPhone



Android browser, Galaxy S3

PDF in mobile phones



PubReader Supported Browsers

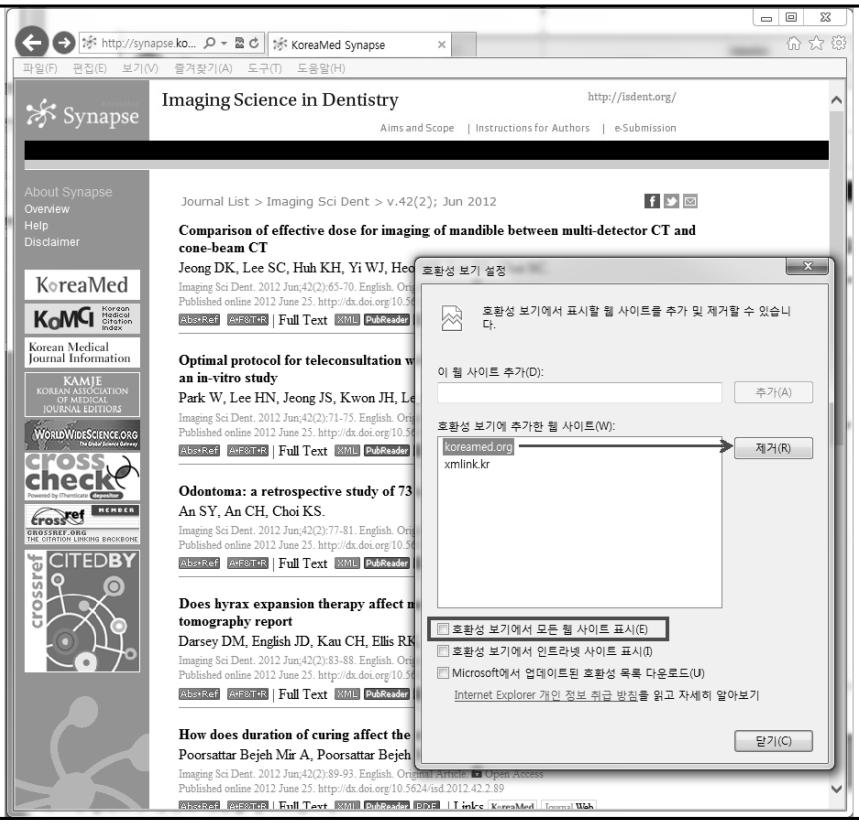
At present, PubReader supports the following platforms and browsers.

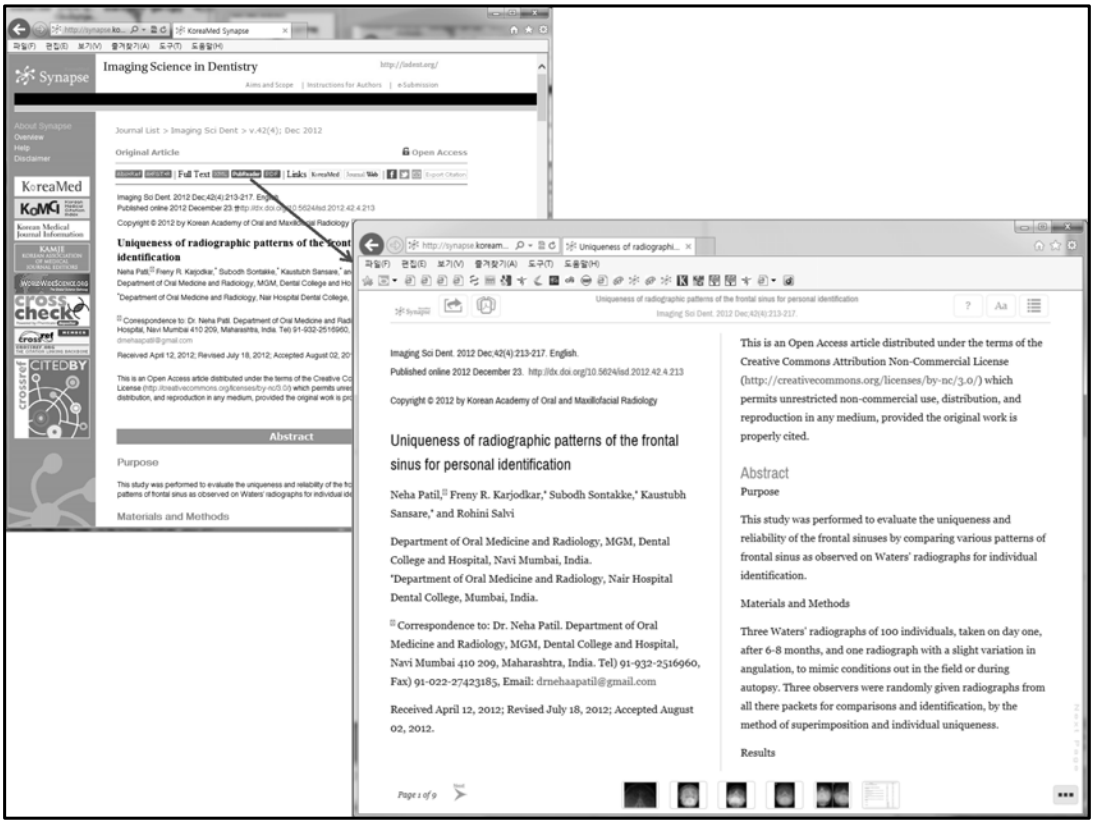
	Browser version	Windows	Mac OSX	iOS (iPad)	Android
Firefox	14 or greater	☑	☑	N/A	⚠
Chrome	20 or greater	☑	☑	☑	☑
Safari	5 or greater	⚠	☑	N/A	N/A
Mobile Safari	5 or greater	N/A	N/A	☑	N/A
Android browser	4 or greater	N/A	N/A	N/A	☑
Internet Explorer	10 or greater	⚠	N/A	N/A	N/A
Opera / Opera Mobile	12 or greater	⚠	⊗	⚠	⚠

☑ Supported
⊗ Not supported
⚠ Not tested

http://www.ncbi.nlm.nih.gov/pmc/about/pr-browsers/

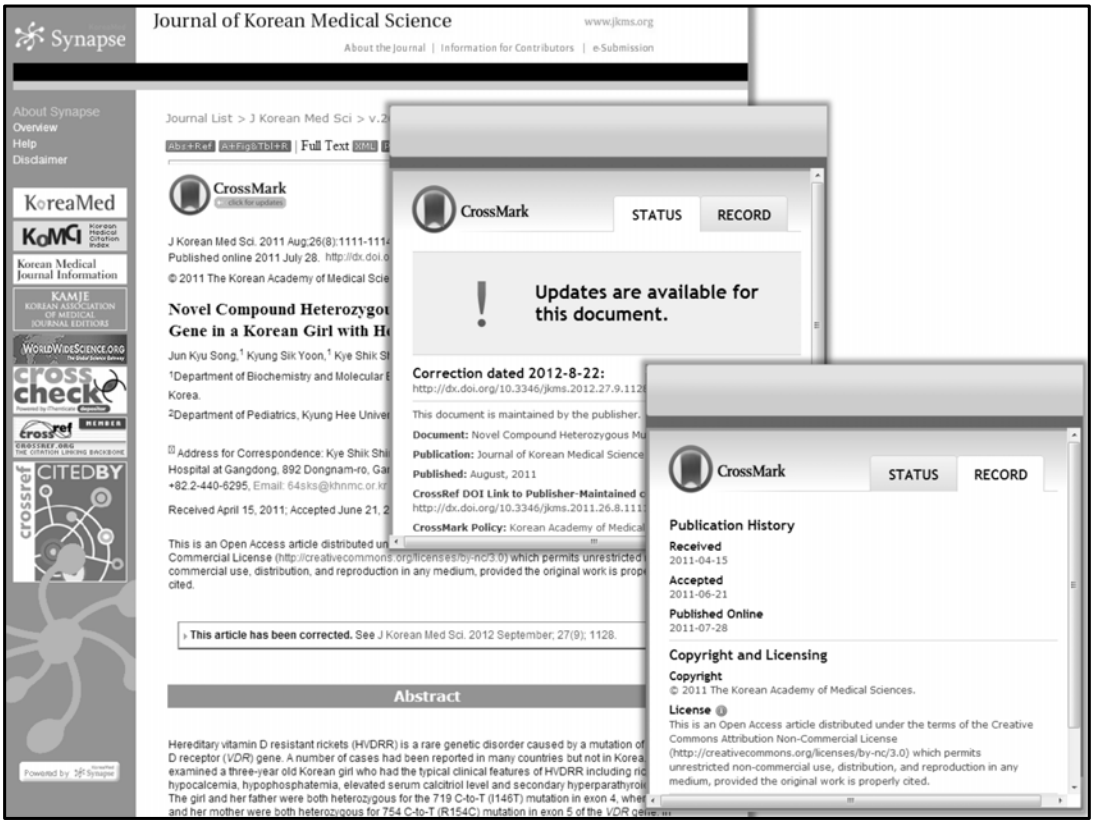
Internet Explorer 호환성 설정 해제

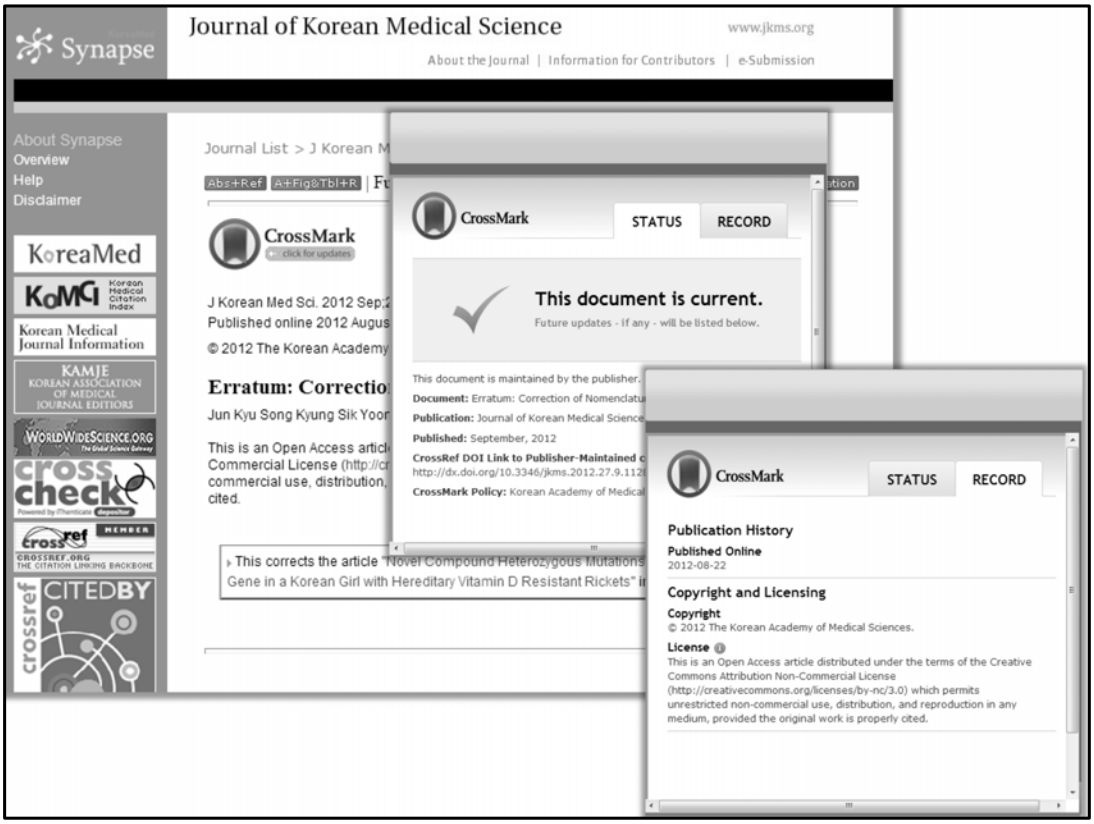




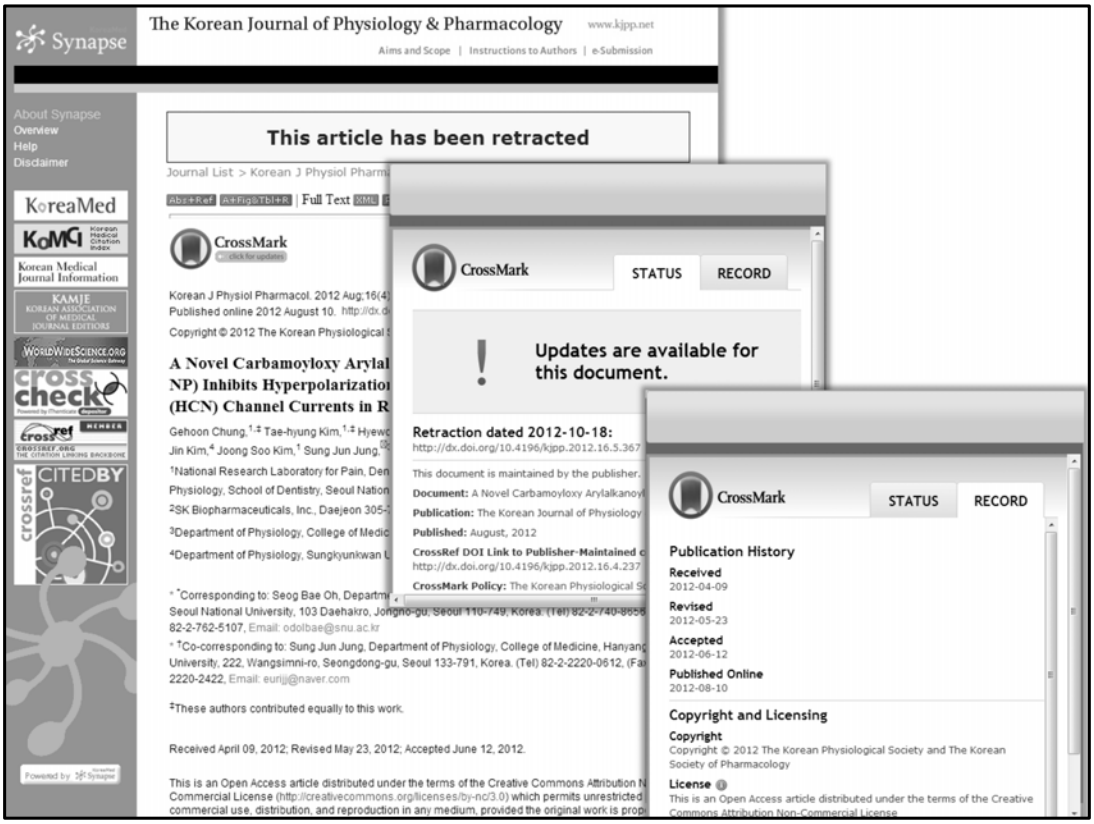
CrossMark 구현 예정 화면

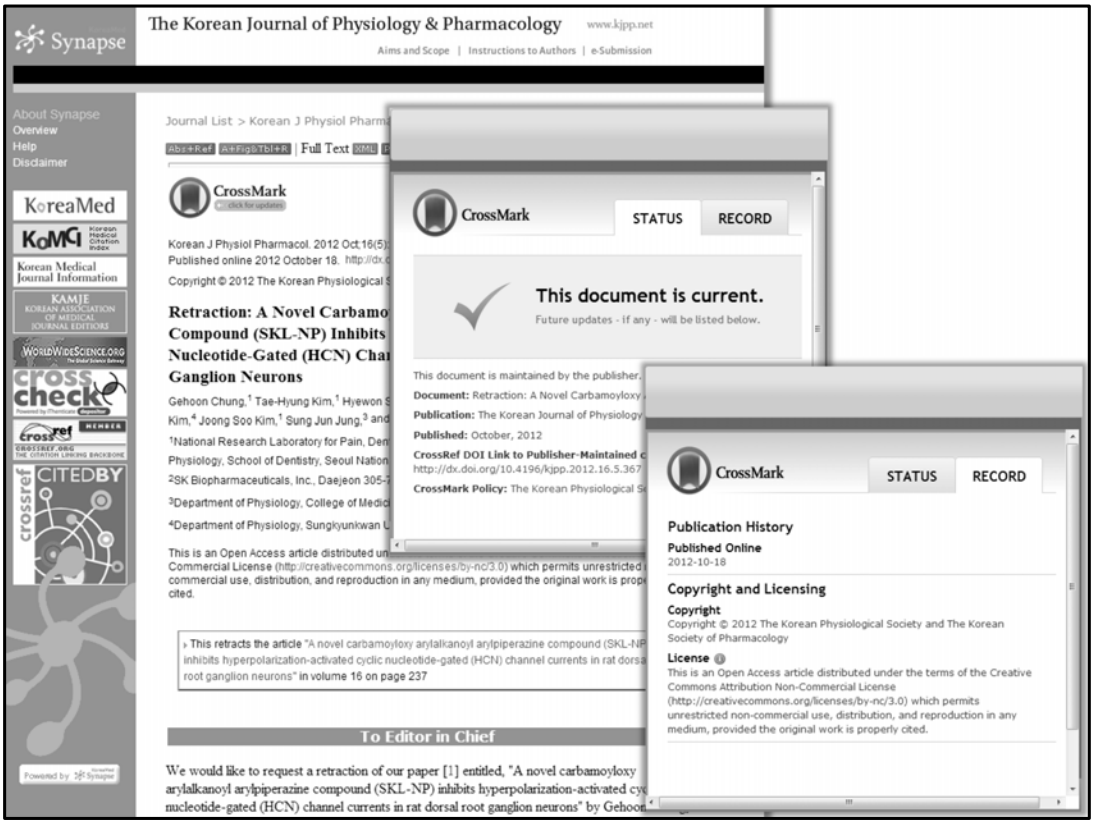
Erratum

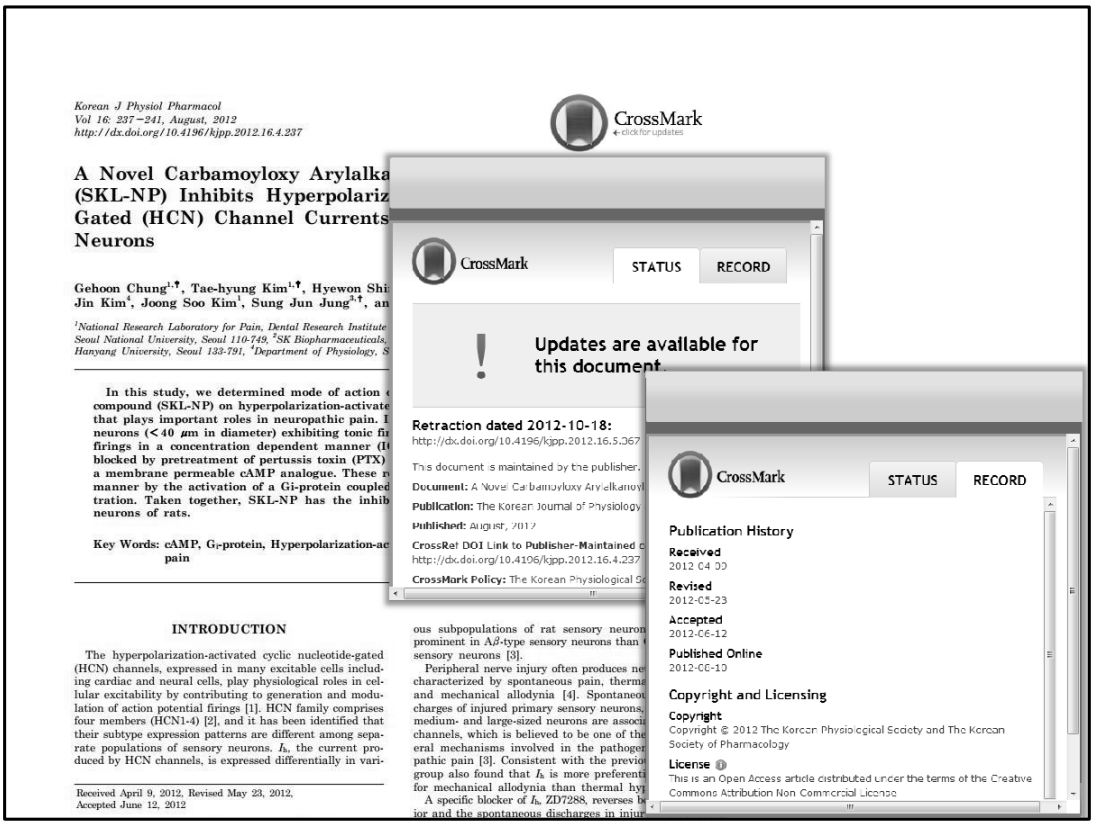

Synapse
Journal of Korean Medical Science
www.jkms.org
About the Journal | Information for Contributors | e-Submission
About Synapse
Overview
Help
Disclaimer
Journal List > J Korean Med Sci > v.2
Abs+Ref A+Fig&Tbl+R | Full Text XML
CrossMark
J Korean Med Sci. 2011 Aug;26(8):1111-1114
Published online 2011 July 28. http://dx.doi.o
© 2011 The Korean Academy of Medical Scie
Novel Compound Heterozygou
Gene in a Korean Girl with He
Jun Kyu Song,[1] Kyung Sik Yoon,[1] Kye Shik Sh
[1]Department of Biochemistry and Molecular B
Korea.
[2]Department of Pediatrics, Kyung Hee Univer
Address for Correspondence: Kye Shik Shi
Hospital at Gangdong, 892 Dongnam-ro, Gan
+82.2-440-6295, Email: 64sks@khnmc.or.kr
Received April 15, 2011; Accepted June 21, 2
This is an Open Access article distributed un
Commercial License (http://creativecommons.org/licenses/by-nc/3.0) which permits unrestricted
commercial use, distribution, and reproduction in any medium, provided the original work is prop
cited.
This article has been corrected. See J Korean Med Sci. 2012 September; 27(9); 1128.
Abstract
Hereditary vitamin D resistant rickets (HVDRR) is a rare genetic disorder caused by a mutation of
D receptor (VDR) gene. A number of cases had been reported in many countries but not in Korea.
examined a three-year old Korean girl who had the typical clinical features of HVDRR including ric
hypocalcemia, hypophosphatemia, elevated serum calcitriol level and secondary hyperparathyroi
The girl and her father were both heterozygous for the 719 C-to-T (I146T) mutation in exon 4, whe
and her mother were both heterozygous for 754 C-to-T (R154C) mutation in exon 5 of the VDR gene.
KoreaMed
KoMCI
Korean Medical Journal Information
KAMJE
WorldWideScience.org
crosscheck
crossref
CITEDBY
Powered by Synapse
CrossMark
STATUS
RECORD
Updates are available for this document.
Correction dated 2012-8-22:
http://dx.doi.org/10.3346/jkms.2012.27.9.112
This document is maintained by the publisher.
Document: Novel Compound Heterozygous Mu
Publication: Journal of Korean Medical Science
Published: August, 2011
CrossRef DOI Link to Publisher-Maintained
http://dx.doi.org/10.3346/jkms.2011.26.8.111
CrossMark Policy: Korean Academy of Medical
CrossMark
STATUS
RECORD
Publication History
Received
2011-04-15
Accepted
2011-06-21
Published Online
2011-07-28
Copyright and Licensing
Copyright
© 2011 The Korean Academy of Medical Sciences.
License
This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (http://creativecommons.org/licenses/by-nc/3.0) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.


Synapse
Journal of Korean Medical Science
www.jkms.org
About the Journal | Information for Contributors | e-Submission
About Synapse
Overview
Help
Disclaimer
KoreaMed
KoMCI
Korean Medical Journal Information
KAMJE
WorldWideScience.org
crossref
CITEDBY
Journal List > J Korean M
Abs+Ref
A+Fig&Tbl+R
CrossMark
click for updates
J Korean Med Sci. 2012 Sep;2
Published online 2012 Augus
© 2012 The Korean Academy
Erratum: Correctio
Jun Kyu Song Kyung Sik Yoon
This is an Open Access articl
Commercial License (http://cr
commercial use, distribution,
cited.
This corrects the article "Novel Compound Heterozygous Mutations
Gene in a Korean Girl with Hereditary Vitamin D Resistant Rickets" i
CrossMark
STATUS
RECORD
This document is current.
Future updates - If any - will be listed below.
This document is maintained by the publisher.
Document: Erratum: Correction of Nomenclatu
Publication: Journal of Korean Medical Science
Published: September, 2012
CrossRef DOI Link to Publisher-Maintained c
http://dx.doi.org/10.3346/jkms.2012.27.9.112
CrossMark Policy: Korean Academy of Medical
CrossMark
STATUS
RECORD
Publication History
Published Online
2012-08-22
Copyright and Licensing
Copyright
© 2012 The Korean Academy of Medical Sciences.
License
This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (http://creativecommons.org/licenses/by-nc/3.0) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

Retraction


Synapse
The Korean Journal of Physiology & Pharmacology
www.kjpp.net
Aims and Scope | Instructions to Authors | e-Submission
About Synapse
Overview
Help
Disclaimer
This article has been retracted
CrossMark
STATUS
RECORD
Updates are available for this document.
Retraction dated 2012-10-18:
Publication History
Received
2012-04-09
Revised
2012-05-23
Accepted
2012-06-12
Published Online
2012-08-10
Copyright and Licensing
Copyright
Copyright © 2012 The Korean Physiological Society and The Korean Society of Pharmacology
License
This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License


Synapse
The Korean Journal of Physiology & Pharmacology
www.kjpp.net
Aims and Scope | Instructions to Authors | e-Submission
About Synapse
Overview
Help
Disclaimer
CrossMark
STATUS
RECORD
This document is current.
Future updates - if any - will be listed below.
Publication History
Published Online
2012-10-18
Copyright and Licensing
Copyright
Copyright © 2012 The Korean Physiological Society and The Korean Society of Pharmacology
License
This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (http://creativecommons.org/licenses/by-nc/3.0) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.
To Editor in Chief



Technical Implementation Guidelines

- Create a CrossMark Policy Page and assign it a DOI
- Deposit CrossMark metadata
- Provide DOIs for items being corrected or updated
- Record the DOI in HTML metadata
- Apply the CrossMark logo widget to your HTML pages
- Apply CrossMark Logo and Metadata to PDF content
  - Add CrossMark metadata to PDF content
  - Apply linked CrossMark logos to PDF content

Deposit CrossMark metadata

A. Status

- Journal title
- Article title
- Publication Date
- DOI Link
- CrossMark Policy
- Updated DOI
- Updated Date

Deposit CrossMark metadata

B. Record

- Journal title, Article title, Content type, Identifiers (ORCID)
- Peer reviewed, Review process
- Publication history (received, revised, accepted, published online)
- CrossCheck plagiarism screening status
- Funding sources
- Conflict of interest disclosures
- Location of related data
- Supplementary materials
- Rights or licensing information (copyright, license)

2013 CrossMark Deposit Fees

Per current item (2011-2013)	$0.20
Per backfile item	$0.02

IMPORTANT: There is no annual fee for CrossMark, however you need to be a CrossRef publisher member.

http://www.crossref.org/02publishers/20pub_fees.html#crossmark

To join or not

- Added work to the publishing procedures
- Collective vs. Individual
- Costs other than deposit fees
  - Who will pay?

Acknowledgements

- Kathy Kwan, NCBI/NLM
- CrossRef
- XMLink