



ΔΙΑΚΡΑΤΙΚΟ
ΔΙΑΤΜΗΜΑΤΙΚΟ
ΠΡΟΓΡΑΜΜΑ
ΜΕΤΑΠΤΥΧΙΑΚΩΝ
ΣΠΟΥΔΩΝ

ΙΑΤΡΙΚΗ ΣΧΟΛΗ
ΠΑΝΕΠΙΣΤΗΜΙΟ ΘΕΣΣΑΛΙΑΣ
σε συνεργασία με το
UNIVERSITÀ DEGLI STUDI
DI GENOVA



Μεταπτυχιακή Διπλωματική Εργασία

“ΔΙΑΣΤΡΩΜΑΤΩΣΗ ΚΙΝΔΥΝΟΥ ΓΙΑ ΕΜΦΡΑΓΜΑ ΤΟΥ ΜΥΟΚΑΡΔΙΟΥ ΣΕ ΑΣΘΕΝΕΙΣ ΜΕ ΑΣΥΜΠΤΩΜΑΤΙΚΗ ΚΑΡΩΤΙΑΔΙΚΗ ΣΤΕΝΩΣΗ”

Υπο

ΦΩΤΕΙΝΗΣ Ν. ΤΡΙΑΝΤΑΦΥΛΛΟΥ

Ειδικευόμενη Καρδιολογίας

Υπεβλήθη για την εκπλήρωση μέρους των

απαιτήσεων για την απόκτηση του

Διακρατικού Μεταπτυχιακού Διπλώματος Ειδίκευσης

*«Υπερηχογραφική Λειτουργική Απεικόνιση για την πρόληψη & διάγνωση των
αγγειακών παθήσεων»*

Λάρισα, 2016

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4	26
5	29

ABSTRACT

Atherosclerosis is a systemic inflammatory vascular disorder, involving multiple arterial beds and characterized by deposition of cholesterol and formation of atherosclerotic plaques. Although modern pharmacotherapy and revascularization have markedly enhanced the prognosis of patients with atherosclerotic vascular disease, myocardial infarction and stroke are still the main causes of death due to this disease.

The presence of asymptomatic carotid artery stenosis is associated with increased prevalence of coronary artery disease. The annual risk of myocardial infarction is high: about 3-5% in patients with atherosclerotic carotid lesions. The evaluation of the classic cardiovascular risk factors in combination with new markers like IMT (intima-media thickness), the CAC score in coronary arteries and the evaluation of the atherosclerotic plaque generally, make it possible to detect patients in high risk for cardiovascular events.

In the present review, the most important studies concerning the risk stratification for cardiovascular events and especially for myocardial infarction in patients with asymptomatic carotid stenosis are presented. In most of the studies, the main cardiovascular risk factors (hypertension, diabetes, hyperlipidemia, smoking etc.) are used for the classification of the patients. The adding of new markers like IMT, CAC score and the study of the morphological characteristics of the atherosclerotic plaque, has led to more accurate classification of patients, thus it constitutes a useful tool in the selection of patients for whom intervention is beneficial.

1.2

The main objective of this study is to investigate the impact of digital marketing strategies on the performance of small and medium-sized enterprises (SMEs) in the retail sector. The study focuses on the effectiveness of various digital marketing channels, including social media, email marketing, and search engine optimization (SEO), in driving sales growth and customer engagement. The research is based on a quantitative approach, involving the analysis of data collected from a survey of 100 SMEs. The findings indicate that digital marketing significantly positively impacts the performance of SMEs, with a strong correlation between digital marketing adoption and sales growth. Specifically, the study shows that SMEs that have implemented digital marketing strategies experience higher sales growth rates compared to those that have not. The research also identifies key factors that influence the success of digital marketing, such as the quality of content, the consistency of messaging, and the use of targeted advertising. The study concludes that digital marketing is a crucial component of a successful marketing strategy for SMEs in the retail sector. The findings have important implications for practitioners and researchers alike, providing valuable insights into the most effective digital marketing strategies for driving business performance. The study also highlights the need for ongoing monitoring and evaluation of digital marketing efforts to ensure continued success. The research is supported by a number of studies, including the work of [1], [2], and [3], which have all found a positive relationship between digital marketing and SME performance. The study is organized as follows: Section 1.1 provides an overview of the research background and objectives. Section 1.2 details the research methodology, including the survey design and data analysis. Section 2 presents the results of the study, including the findings on the impact of digital marketing on SME performance. Section 3 discusses the implications of the findings and provides recommendations for practitioners. Section 4 concludes the study and identifies areas for future research.

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2.

MEDLINE- PUBMED
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>75%. ()

< 50%, 50-75%, follow-up, (28)

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(42)

8,3% ()

>75%, 2,7% <50%

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TABLE 2. Annual Percentage Rate of Vascular Events Over Period of Follow-up

Degree of stenosis	TIA	Stroke	Cardiac	Vascular death
<50% (mild)	1.0	1.3	2.7	1.8
50-75% (moderate)	3.0	1.3	6.6	3.3
>75% (severe)	7.2	3.3	8.3	6.5

TIA, transient ischemic attack.

Norris et al *Vascular Risks Stroke Vol 22, No 12 December 1991*

adareishvili et al 2002.

106 (44) 56-72 10 (5-18)

5 50% 10

Doppler

μ PSV 125-230cm/s 50-70%
 μ PSV >230cm/s 70%

>70%

(LAD, Lcx, RCA).

>50%.

μ

:

Medical history	
Age, yrs	65 ± 11
Male	1,084 (77.2)
Current smoker	211 (15.0)
Past smoker	218 (15.5)
Diabetes mellitus	536 (38.1)
Hypertension	732 (52.1)
Dyslipidemia	1,039 (74.0)
Post-MI	333 (23.7)
Post-stroke	50 (3.6)
Post-CABG	206 (14.7)
CRF	92 (6.5)
Renal dialysis	7 (0.5)
Indications for coronary angiography	
Non-specific chest pain evaluation	53 (4.4)
Stable angina pectoris	184 (13.0)
Unstable angina	559 (39.7)
Acute MI	52 (3.7)
Positive stress test	214 (15.2)
Pre-valve surgery	58 (4.6)
Staged angioplasty	188 (13.3)
Other	79 (5.6)

Values are mean ± SD or n (%).

CABG = coronary artery bypass grafting; CRF = chronic renal failure; MI = myocardial infarction; PCI = primary coronary intervention.

JACC Vol. 57, No. 7, 2011
 February 15, 2011:779-83

Steinvil et al.
Concomitant Carotid and Coronary Disease

μ , μ
 μ CAS > 50% 5,9% μ
 , 6,6% μ 1 , 13% μ
 2 , 17,8% μ 3 , 31,3% μ LMD.

μ CAS >70%, 1
24,5%.(.)

Table 2 Frequencies of CAS Severity by the Degree of CAD Severity

CAD Extent	CAS Severity		
	Normal or Mild	Moderate	Severe or Total Occlusion
Normal or nonobstructive	272 (94.1)	11 (3.8)	6 (2.1)
1-vessel disease	243 (93.5)	9 (3.5)	8 (3.1)
2-vessel disease	335 (87)	36 (9.4)	14 (3.6)
3-vessel disease	319 (82.2)	42 (10.8)	27 (7.0)
Left main disease	57 (68.7)	17 (20.5)	9 (10.8)

Values are n (%). Carotid artery stenosis (CAS) defined as: normal (PSV <125 cm/s with no signs of atherosclerotic lesions); mild CAS (defined as PSV <125 cm/s and the presence of a noncalcific atherosclerotic lesion consisting in diameter stenosis of <50%); moderate CAS (defined as PSV between 125 and 230 cm/s consisting in diameter stenosis of 50% to 70%); severe CAS (defined as PSV >230 cm/s consisting in diameter stenosis of >70%); and total or near occlusion (defined as 0-PSV and no visible flow).
CAD = coronary artery disease.

JACC Vol. 57, No. 7, 2011
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Steinvil et al.
Concomitant Carotid and Coronary Disease

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μ 72%.(.)

TABLE 1 CIMT as Prognostic Indicator of Cardiovascular Events

Study (Ref. #)	Sample Size, No. (% Women)	Age of Subjects, yrs	Follow-Up	Carotid Ultrasound Parameters	Plaque	Endpoints	CIMT, RR (95% CI)
KHND (25)	1,257 (0)	42-60 yrs	1 month to 2.5 yrs	CCA-IMT, mean of maximal IMT, near and far wall, bilateral	Focal calcified plaque not included	AMI	CCA-IMT increment, 0.1 mm; RR: 2.94 (1.06-4.26)
CHS (16)	5,020 (60)	72.6 ± 5.5 yrs	5 days to 12 yrs (median, 11 yrs)	CCA and ICA-IMT, mean of maximal IMT, near and far wall, bilateral	Plaque included	MI, stroke, CV death, all-cause mortality	Highest tertile RR: 1.84 (1.54-2.20)
ARIC (17)	12,841 (57)	45-64 yrs	Mean follow-up, 15.7 yrs	Mean far wall IMT at 6 sites (CCA, bulb, ICA, bilateral)	Plaque included	MI, CV death	IMT ≥1.0 mm women: HR: 5.07 (1.08-8.36); men: 1.85 (1.28-2.69)

Naqvi and Lee

IMT, Plaque, and Cardiovascular Risk

TABLE 2 Carotid Plaque as Prognostic Indicator of Cardiovascular Events

Study (Ref. #)	Sample Size, No. (% Women)	Age of Subjects, yrs	Follow-Up	Definition of Plaque	Endpoints	Plaque RR (95% CI)
Tromso Study (54)	6,226 (44)	25-84	6 yrs	Localized protrusion of the vessel wall into the lumen	MI	Highest plaque area tertile, RR: 1.56 (1.04-2.36) in men and RR: 3.95 (2.16-7.19) in women
APSIS (100)	558 (33)	60 ± 7	Median, 3.0 yrs	Distinct area with IMT more than twice that of neighboring sites	CV death, MI	Presence of plaque, RR: 1.83 (0.96-3.51)
KHND (25)	1,288 (0)	42-60	1 month to 2.5 yrs	Area with mineralization or focal protrusion into the lumen, measured at the carotid bulb	MI	Small plaque, RR: 4.15 (1.51-11.47); large plaque, 6.7 (1.33-33.9)
Rotterdam Study (15)	6,389 (61.9)	69.3 ± 9.2	7-10 yrs	Focal widening relative to adjacent segments with protrusion into the lumen	MI	HR for severe plaque: 1.83 (1.27-2.62)
ARIC (50)	13,145 (57)	54.0 ± 5.8	Mean, 15.1 yrs	Plaque defined as meeting 2 of 3 criteria: 1) CIMT >1.5 mm; 2) protrusion into the lumen; and 3) abnormal wall texture	MI, CV death, revascularization	HR varied depending on risk factors. Model with plaque and CIMT improved area under the curve from 0.742 to 0.755

Naqvi and Lee

IMT, Plaque, and Cardiovascular Risk

μ (coronary artery calcium) μ μ μ μ μ CAC

μ μ μ μ μ μ μ (IMT),

μ μ μ μ μ μ μ CAC μ μ μ μ

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The Framingham Risk Score, μ μ European Systematic Coronary Risk Evaluation PROCAM, CAC μ μ μ μ μ μ μ μ

Table 1 Risk factors contributing to 10-year risk of CHD

- For patients with multiple (2+) risk factors
 - Perform 10-year risk assessment
 - For patients with 0–1 risk factor
 - 10-year risk assessment not required
 - Most patients have 10-year risk <10%
- Major risk factors
- LDL cholesterol
 - Cigarette smoking
 - Hypertension (BP 140/90 mmHg or on antihypertensive medication)
 - Low HDL cholesterol (<40 mg/dL)
 - Family history of premature CHD
 - CHD in male first-degree relative <55 years
 - CHD in female first-degree relative <65 years
 - Age (men 45 years, women 55 years)
 - HDL cholesterol 60 mg/dL counts as "negative" risk factor; its presence removes one risk factor from the total count
 - In ATP III, diabetes is regarded as a CHD risk equivalent

Abbreviations: ATP III, Adult Treatment Panel III; CHD, coronary heart disease; HDL, high-density lipoprotein; LDL, low-density lipoprotein; BP, blood pressure.

Sharma et al Vascular Health and Risk Management 2010;6 603–611

NCEP(National Cholesterol Education Program),

μ , μ μ

μ μ μ CAC score. μ μ

CAC μ μ μ , Kondos et al,

Greenland et al Lamond et al, CAC score

μ μ μ μ μ

μ μ μ

1.0 , 1.9 , 4.3 , 7.2 , 10.8 μ CAC 0, 1-99, 100-400 , 400-999 >1000 .

μ MESA 2008, μ

Agatston score(CAC) μ μ μ μ μ

6,698 , 45-84 (3.161 , 3,537).

μ μ Agatston score, μ

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94%, 80% 51%

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Prateek Gupta et al,(2012) μ μ μ μ
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μ 30 μ μ 167 (0,9%) μ
, 108 (0,6%) μ μ μ μ 72 (0,4%)
μ μ μ 1,8%.
(86,2%) μ , 1.2%
(210 17.692) .

μ , < 60
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>80 , μ μ μ μ CEA .
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 24,35%, CEA(μ)
 22,7%. μ CEA μ -
 μ ACAS 1995 ACST 2004- μ

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