


The 44<sup>th</sup> Annual International Congress of the  
EGYPTIAN SOCIETY OF  
**CARDIOLOGY**  
CardioEgypt2017



20-23  
February 2017  
Sharm El Sheikh

**Post-PCI antiplatelet therapy in  
patients with liver cirrhosis**

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## Post-PCI antiplatelet therapy in patients with liver cirrhosis

- Case scenario
- CHD in patients with hepatic cirrhosis
- PCI in patients with hepatic cirrhosis
- Ischemic risk in patients with hepatic cirrhosis
- Bleeding risk in patients with hepatic cirrhosis
- Conclusion



## Post-PCI antiplatelet therapy in patients with liver cirrhosis

- Case scenario

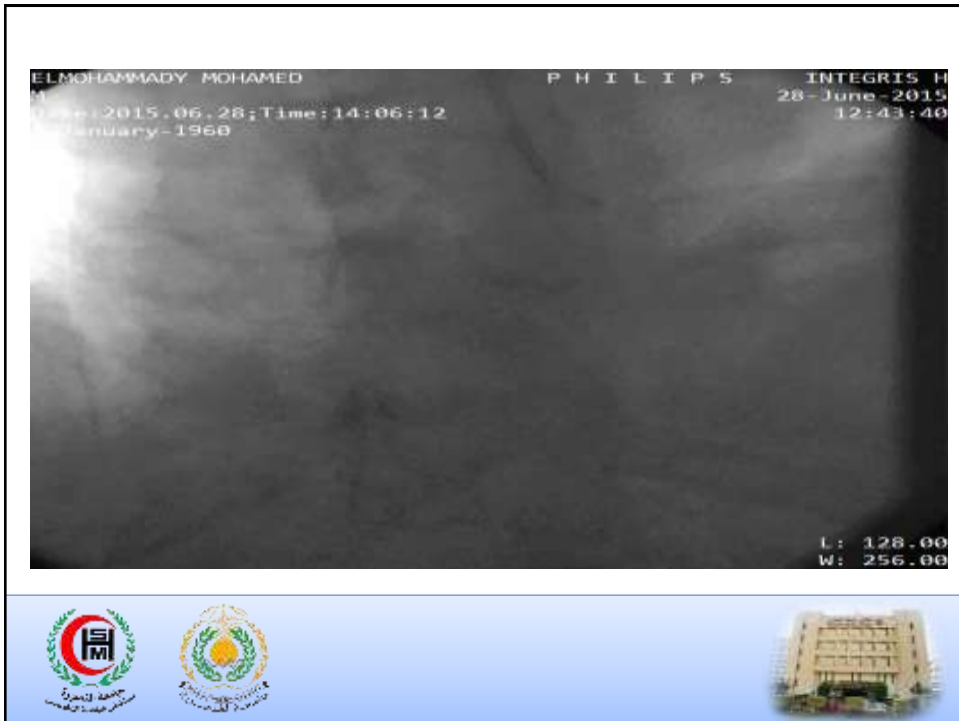
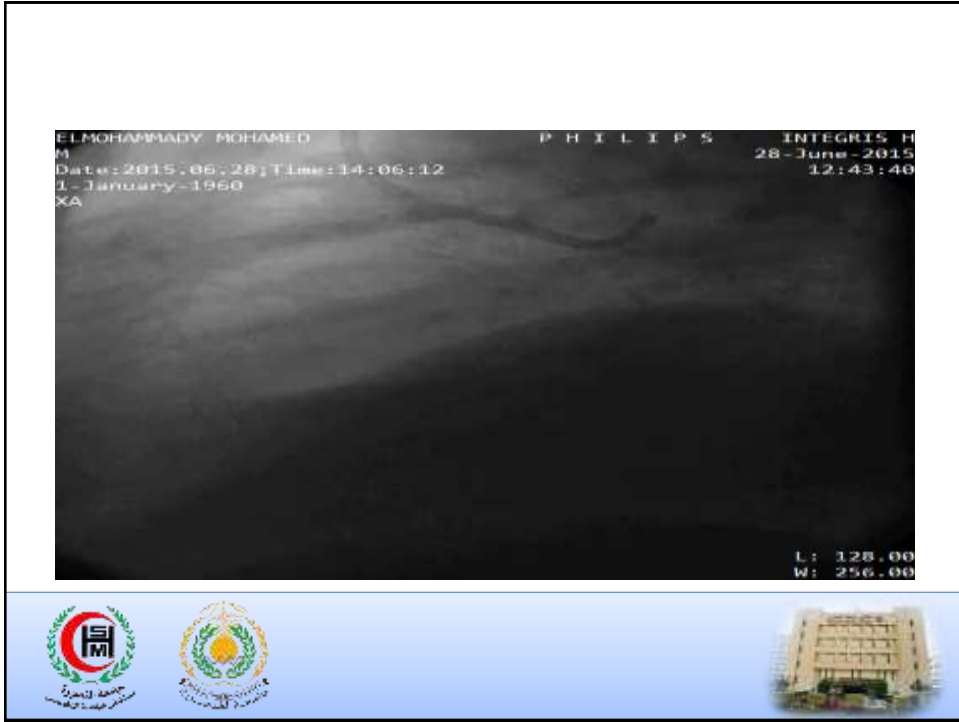


## Clinical data

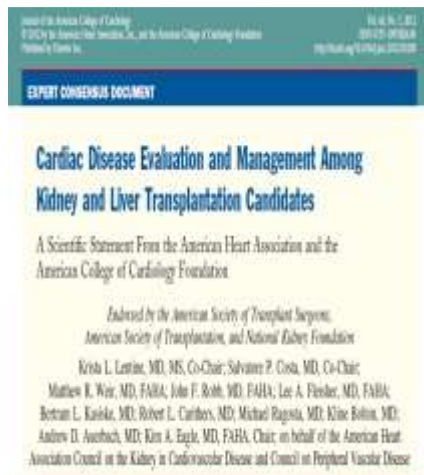
- Male, m m a a
- 62 y
- Type 2 DM, HTN
- Class III AP despite OMT
- SVD, mid-LAD 80% lesion
- No history of GIT bleeding
- No esophageal varices
- Platelets count 70 000
- Prepared for liver transplantatin







## Treatment strategy



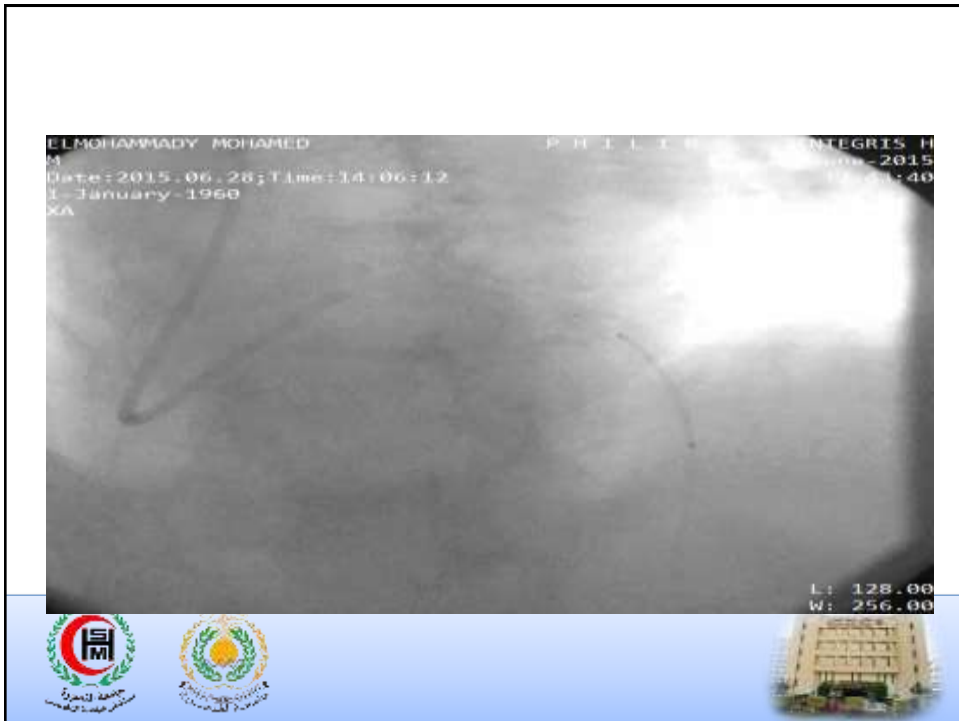
- There is no information in the literature about the outcomes of PCI in patients with CAD and ESLD.
- However, it has been suggested that symptomatic, medically refractory angina in liver transplantation candidates should be treated with PCI (preferably BMS and limited dual antiplatelet therapy)

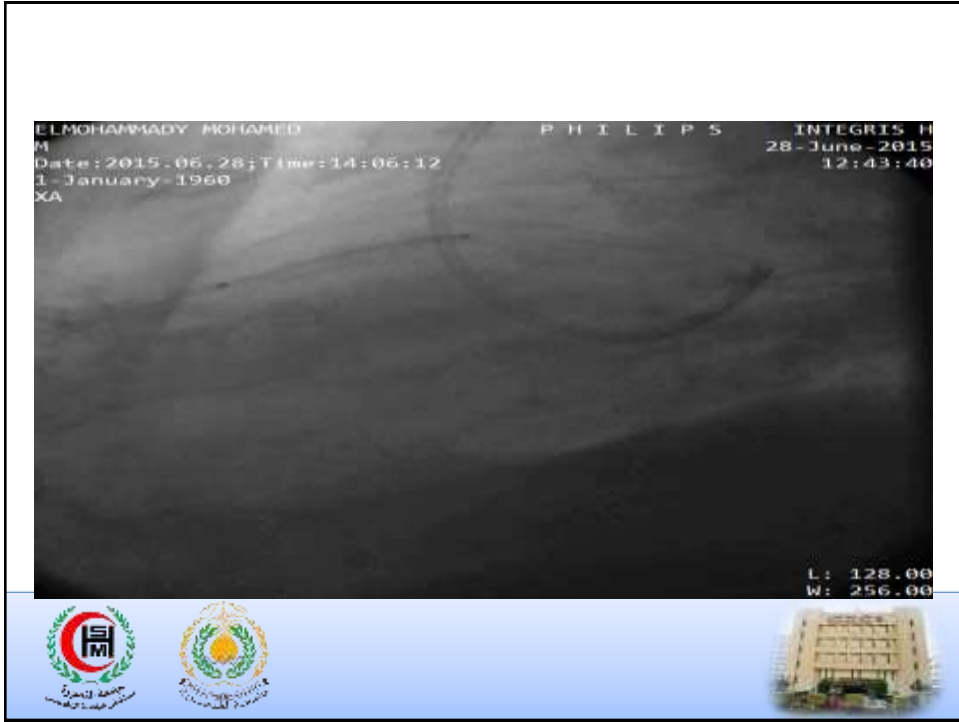
## PCI and stenting

**28 June 2015:**

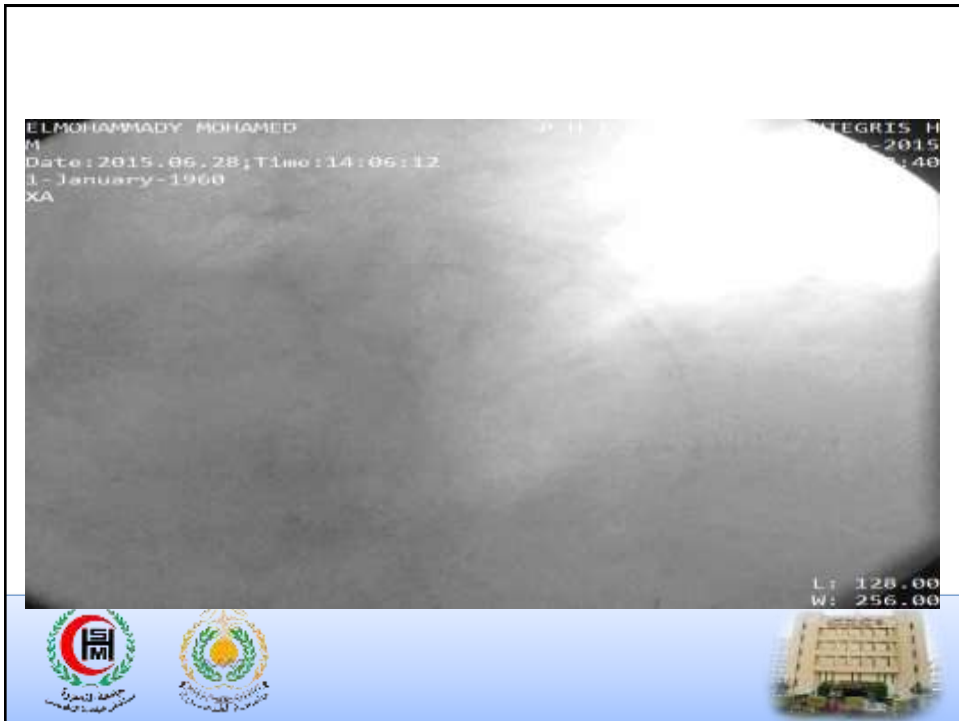
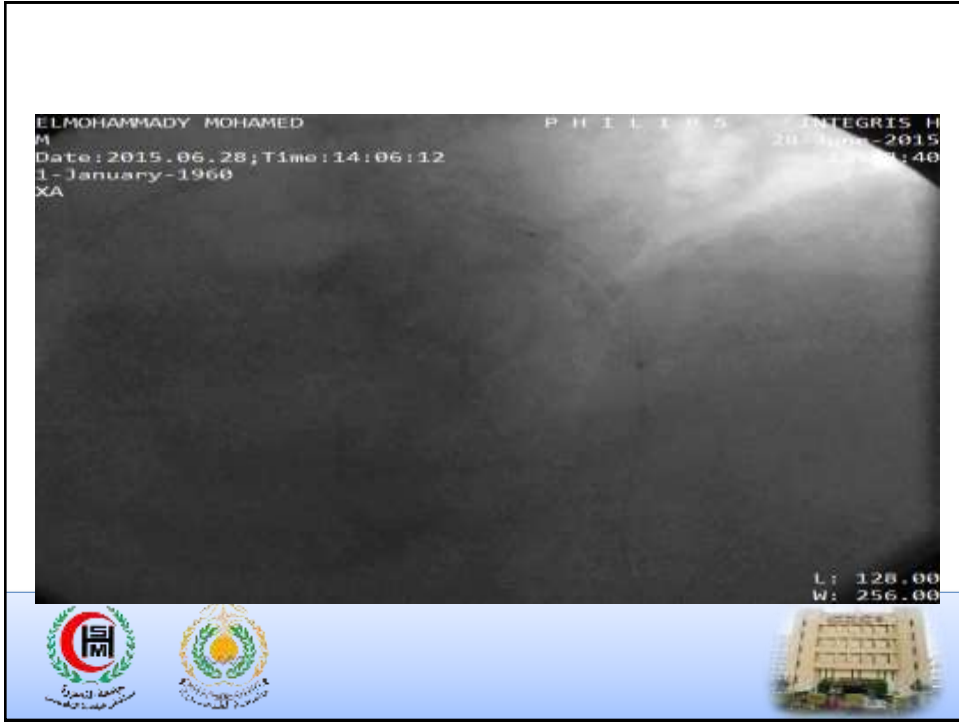
- **Lesion:** mid LAD 80% focal calcified
- **Guiding:** XB 3.5 6F
- **Wire:** BMW 0.014 floppy
- **Stent:** 3.5 28 vision ( BMS )( Abbot)
- **Technique:** direct stenting at 20 atm

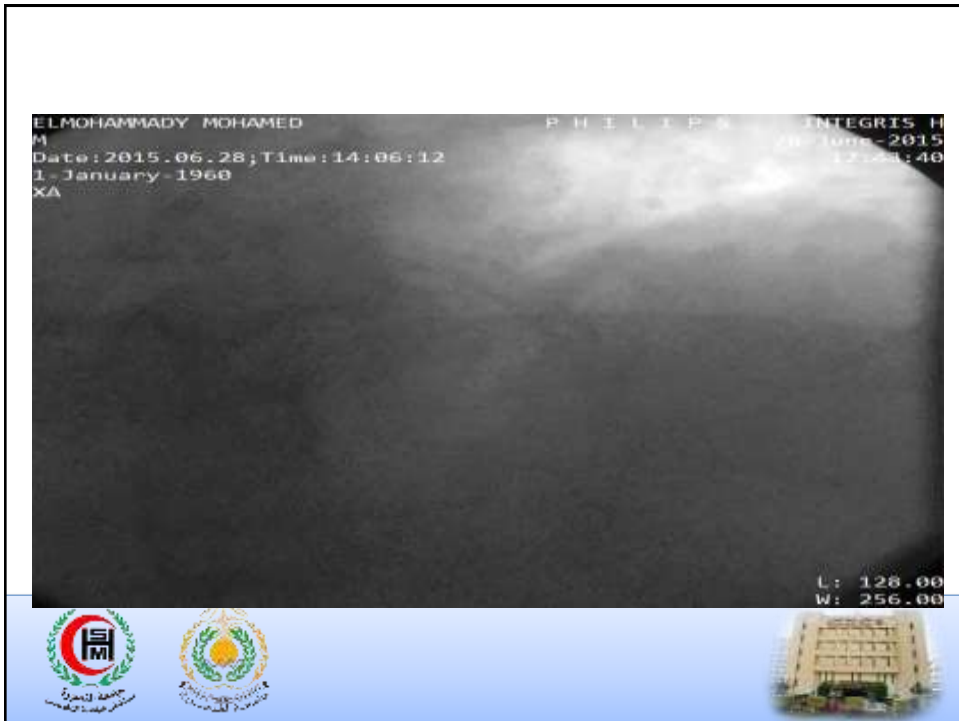












## Clinical course

- Stable
- Discharged on same day
- Usual treatment including DAP
- **2-days latter patient developed massive hematuria**
- Modified dose of DAP : low-dose ASA and clopidogril given every other day
- Completely asymptomatic

Last follow- up 20 Feb. 2017



## Post-PCI antiplatelet therapy in patients with liver cirrhosis

- Case scenario
- CHD in patients with hepatic cirrhosis



## HCV is a major endemic medical health problem in Egypt

- 14.7% of the population are infected
- The highest prevalence in any population in the world.
- Nile Delta and Upper Egypt, infection rates can be much higher at around 26% and 28%
- HCV seroprevalence up to 40% in some areas of Egypt based on blood-bank surveys
- 170,000 new cases every year to add to the
- 11.5 million patients suffering from the disease



International Journal of General Medicine

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REVIEW

## Hepatitis C in Egypt – past, present, and future

This article was published in the following Dove Press journal  
International Journal of General Medicine  
20 December 2014  
Number of times this article has been viewed

Ahmed Elgharably<sup>1,2</sup>  
Asmaa I Gomaa<sup>2</sup>  
Mary ME Crossey<sup>1,2</sup>  
Peter J Norsworthy<sup>1</sup>  
Imam Waked<sup>2</sup>  
Simon D Taylor-Robinson<sup>1</sup>

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# HCV infection and ischaemic heart disease

**Table 3.** Main studies assessing the association between hepatitis C virus (HCV) infection and ischaemic heart disease

References, year	Type of study	Country	HCV+ (n)	HCV- (n)	Statistics	Diagnosis method
<b>Studies showing an association</b>						
Vassalle et al. (11), 2004	Cross-over	Italy	491	195	OR = 4.2 95% CI: 1.4-13	HCV antibody
Alyan et al. (40), 2008	Cross-sectional	Turkey	139	225	OR = 2.02 95% CI: 1.58-2.58	HCV antibody
Butt et al. (36), 2009	Cross-sectional	USA	82 083	89 582	HR = 1.25 95% CI: 1.2-1.3	ICD-9
Tsui et al. (35), 2009	Cross-sectional	USA	84	897	HR = 2.13 95% CI: 1.19-3.80	HCV antibody
Ramdeen et al. (45), 2010	Retrospective cohort	USA	78	-	OR = NA	HCV antibody
Freiberg et al. (41), 2011	Cross-sectional**	USA	1439	5453 (HIV-) 1687 (HIV+)	HR = 2.03 95% CI: 1.28-3.21	ICD-9
<b>Studies not showing an association</b>						
Völzke et al. (30), 2004	Transversal	Germany	21	4033	OR = NA	HCV antibody
Butt et al. (42), 2007	Cross-sectional	USA	126 926	126 926	OR = NA	ICD-9
Forde et al. (37), 2012	Retrospective cohort	UK	4809	71 668	HR = 1.1 95% CI: 0.67-1.83	ICD-9
ounossi et al. (34), 2013	Cross-sectional	USA	173	19568	OR = NA	HCV RNA

\*\*HIV patients HR, hazard ratio; ICD-9, International Classification of Diseases-9; NA, not available; OR, odds ratio, 95% CI, 95% confidence interval

The Egyptian Heart Journal 2013; 16: 1-12



Egyptian Society of Cardiology  
The Egyptian Heart Journal

www.elsevier.com/locate/ehj  
www.sciencedirect.com



## CardioAlex 2013 Abstracts

**Patients and methods:** This study group included two groups of patients with angiographically documented CAD; 25 HCV seropositive patients as test group and another 25 HCV seronegative patients as control group. Both groups were comparable as regard, age, sex, hypertension, and diabetes mellitus, and smoking. A detailed qualitative coronary angiographic analysis and SYNTAX score were used to assess the extent and severity of CAD.

**Results:** The presence of total occlusion was significantly higher in the HCV seropositive group ( $p < 0.05$ ) and the SYNTAX score was higher ( $14.86 \pm 6.64$  vs.  $10.86 \pm 7.28$ ,  $p < 0.05$ ). After adjustment, HCV seropositivity still represented an independent predictor for severity of coronary atherosclerosis demonstrated by higher SYNTAX score ( $p < 0.05$ ).

**Conclusion:** HCV infection is an independent predictor for severe coronary atherosclerosis, as demonstrated by higher syntax score. It also associated with higher incidence of totally occluded coronaries.

**Hepatitis C Virus (HCV) Infection as a novel risk factor for severe coronary artery disease: A Prospective Angiographic Study**

Ahmed H. Eladawy<sup>1</sup>, Gamal F. Gomaa<sup>2</sup>, Ahmed A. Wafa<sup>1</sup>, Fawzia M. Eklemeedash<sup>2</sup>, Fouad Selim<sup>2</sup>, Wael R. Refaey<sup>2</sup>, Essam M. Mahfouz<sup>2</sup>

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## REVIEW ARTICLE

## Chronic hepatitis C virus infection, a new cardiovascular risk factor?

 Fanny Domont<sup>1,2,3</sup> and Patrice Cacoub<sup>1,3,4,5</sup>

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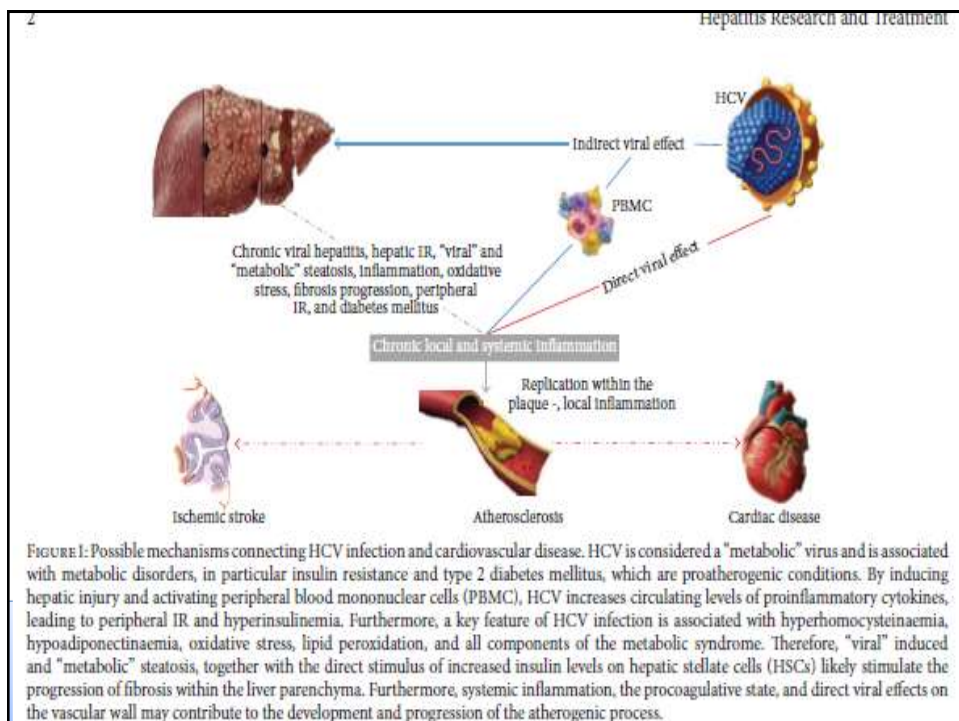
2 Inflammation-Immunopathology-Biotherapy Department (DHU i2B), Paris, France

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Liver Int. 2016; 36: 621–627. DOI: 10.1111/liv.13064



*Review Article*

## **Atherosclerosis as Extrahepatic Manifestation of Chronic Infection with Hepatitis C Virus**

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Received 11 October 2015; Accepted 20 December 2015

### **Post-PCI antiplatelet therapy in patients with liver cirrhosis**

- **Case scenario**
- **CHD in patients with hepatic cirrhosis**
- **PCI in patients with hepatic cirrhosis**



## PCI in patients with CAD and ESLD



- There is no information in the literature about the outcomes of PCI in patients with CAD and ESLD.
- However, it has been suggested that symptomatic, medically refractory angina in liver transplantation candidates should be treated with PCI (preferably BMS and limited dual antiplatelet therapy)

## Antiplatelets post-PCI in patients with hepatic cirrhosis

- **The currently available evidence suggests that low-dose aspirin is relatively safe in terms of bleeding risk in patients with cirrhosis, but without significant varices after coronary artery stenting.**

(Lisman et al. J of Hepatology. 2013; 59, 358)





## Antiplatelets post-PCI in patients with hepatic cirrhosis

- The pharmacokinetics and pharmacodynamics of Clopidogrel are unaltered in patients with Child A or B cirrhosis
- A major disadvantage of the clopidogril is that they require metabolic activation by the liver
- Reversible P2Y12 inhibitor Ticagrelor does not require metabolic activation, but is cleared by the liver
- (Lisman et al. J of Hepatology. 2013; 59, 358)



## Antiplatelets post-PCI in patients with hepatic cirrhosis

- The use of P2Y12 inhibitors for prevention of arterial events in cirrhosis may be limited to those patients without varices, since the rate of variceal bleeding in patients receiving antiplatelet agents following stent placement was substantial (12.5%)

(Lisman et al. J of Hepatology. 2013; 59, 358)



## Post-PCI antiplatelet therapy in patients with liver cirrhosis

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- Ischemic risk in patients with hepatic cirrhosis



Conclusion



## Factors favoring prothrombotic state

- Increased synthesis of factor 8
- Increased levels of von-willebrand factor
- Decreased liver synthesis of protein C, protein S and anti-thrombin 3
- Genetic predisposition such as factor 5 Leiden

## Post-PCI antiplatelet therapy in patients with liver cirrhosis

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### Conclusion



## Factors favoring anticoagulant state

- Decreased synthesis of coagulation factors (II, V, VII, X, XI, XII, XIII) and fibrinogen
- Reduced clearance of tissue plasminogen activator
- Thrombocytopenia
- Impaired platelets function
- Vitamin K deficiency

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## CONCLUSION

- ESLD due to chronic HCV infection is a major health problem in EGYPT
- CHD is frequently seen in patients with hepatic cirrhosis
- Revascularization using BMS in selected patients is an option for cirrhotic patients peppered for LT
- DAP can used safely after coronary stenting in patients with CHD and liver cirrhosis child A and B
- Esophageal varices is a contraindication for the use of DAP and should be treated first before revascularization
- Clinician should balance between thrombotic and bleeding risk in patients with CHD and ESLD



