

Beta Blocker Optimization in Hemodialysis

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PEOPLE ON HEMODIALYSIS ARE SPECIAL



Beta Blockers

Beta Blockers

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Beta Blockers

“Wait a second...I’ve got some questions”

So, beta blockers are important drugs?

Aspirin, Beta-Blocker, and Angiotensin-Converting Enzyme Inhibitor Therapy in Patients With End-Stage Renal Disease and an Acute Myocardial Infarction

Alan K. Berger, MD,*† Sue Duval, PhD,† Harlan M. Krumholz, MD, FACC‡§||¶
Minneapolis, Minnesota; †New Haven, Connecticut

Systematic review

Reports

Beta-blocker prevents sudden cardiac death in patients with hemodialysis

Yuya Matsue*, Makoto Suzuki, Wataru Nagahori, Masakazu Ohno, Akihiko Matsumura, Yuji Hashimoto
Division of Cardiology, Department of Medicine, Kameda Medical Center, 929 Higashi-chou, Kamogawa-shi, Chiba 296-8602, Japan

Dilated Cardiomyopathy in Dialysis Patients: Beneficial Effects of Carvedilol: A Double-Blind, Placebo-Controlled Trial

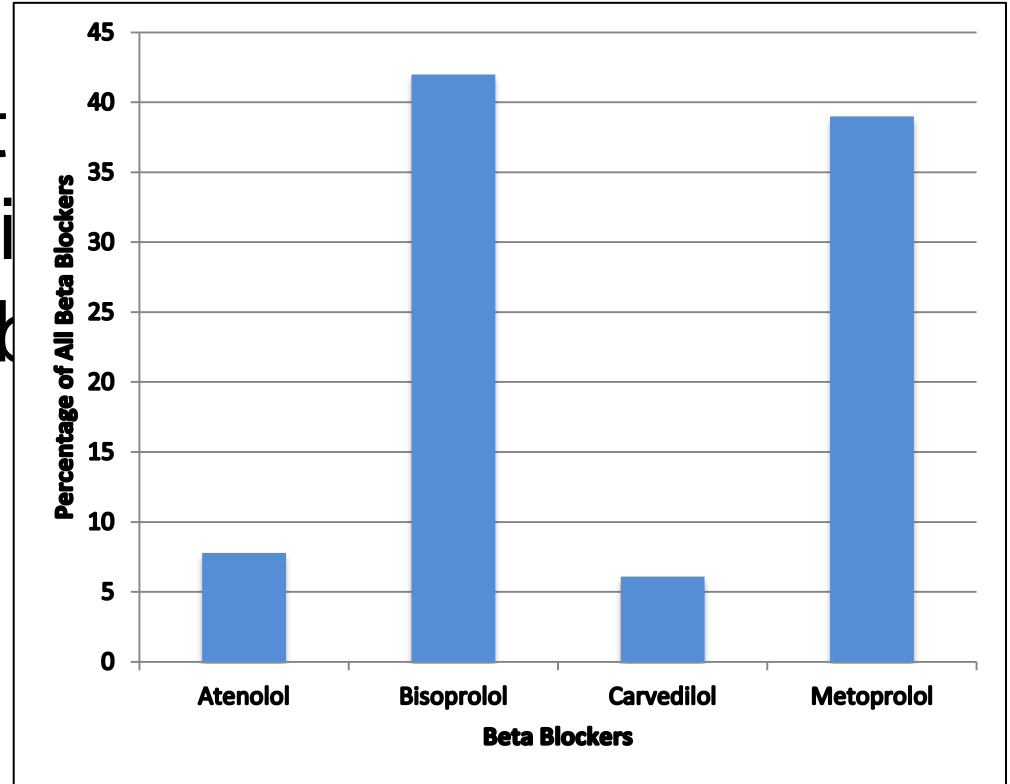
Gennaro Cice, MD,* Luigi Ferrara, MD,* Attilio Di Benedetto, MD,† Pina Elvira Russo, MD,* Giancarlo Marinelli, MD,* Francesco Pavese, MD,* Aldo Iacono, MD, FESC*
Naples, Italy

Real outcomes
of Or
trolled trial

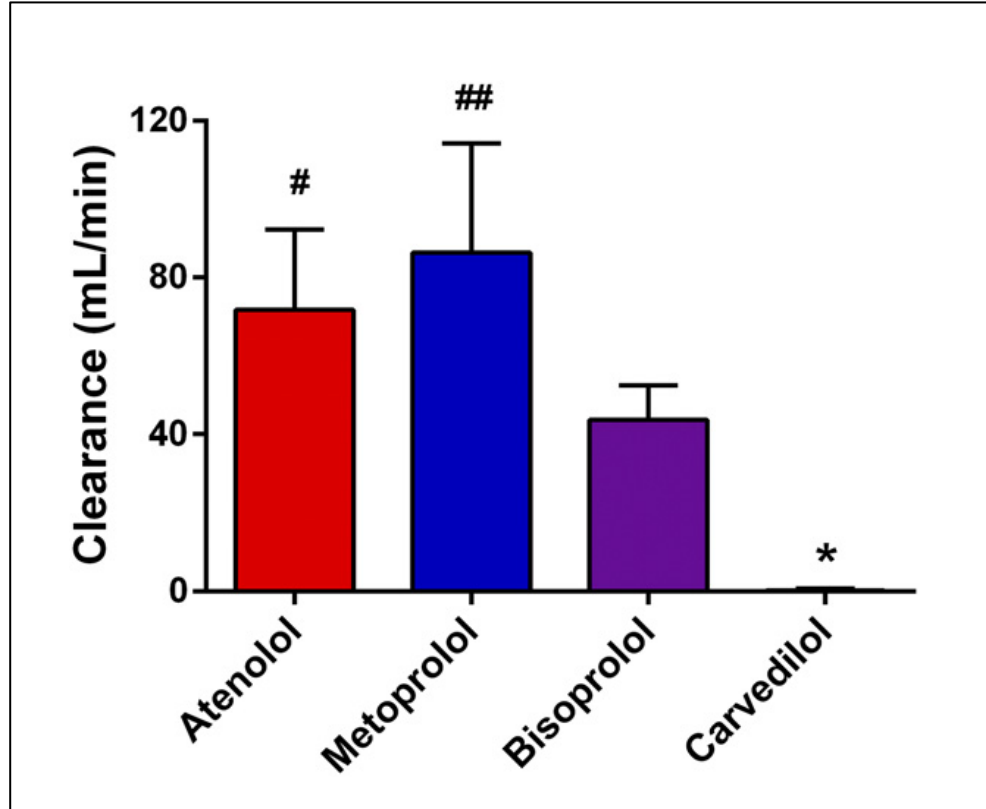
Philip A Poole-Wilson, Karl Swedberg, John G F Cleland, Andrea Di Lenarda, Peter Hanrahan, Michal Komajda, Jacobus Lubsen, Beatrix Lutiger, Marco Metra, Willem J Remme, Christian Torp-Pedersen, Armin Scherhag, Allan Skene, for the COMET investigators*

Do a lot of patients on hemodialysis take beta blockers?

Our best guess is that patients on hemodialysis take some kind of beta blocker.



And hemodialysis removes some beta blockers and not others?



Does “dialytic clearance” matter?

Table 2. All-cause mortality (conditional logistic regression model)

Variable	Patients (n)	No. of Events (%)	RR (95% CI)	P Value
Hemodialysis cohort				
High-dialyzability β -blockers	3294	182 (5.5)	1.4 (1.1 to 1.8)	<0.01
Low-dialyzability β -blockers	3294	135 (4.1)	1 (referent)	
Nondialysis cohort				
High-dialyzability β -blockers	13,586	186 (1.4)	1.0 (0.9 to 1.3)	0.71
Low-dialyzability β -blockers	13,586	179 (1.3)	1 (referent)	

AHMERGAWD!

We should study this!

STUDY PLAN

RESEARCH

Do patients

benefit

from

drugs

ever

centres

prescribed as usual?

Covariate-constrained

optimization of
patient's hemodialysis
(n > 14 patients)
evaluation of medical
practice

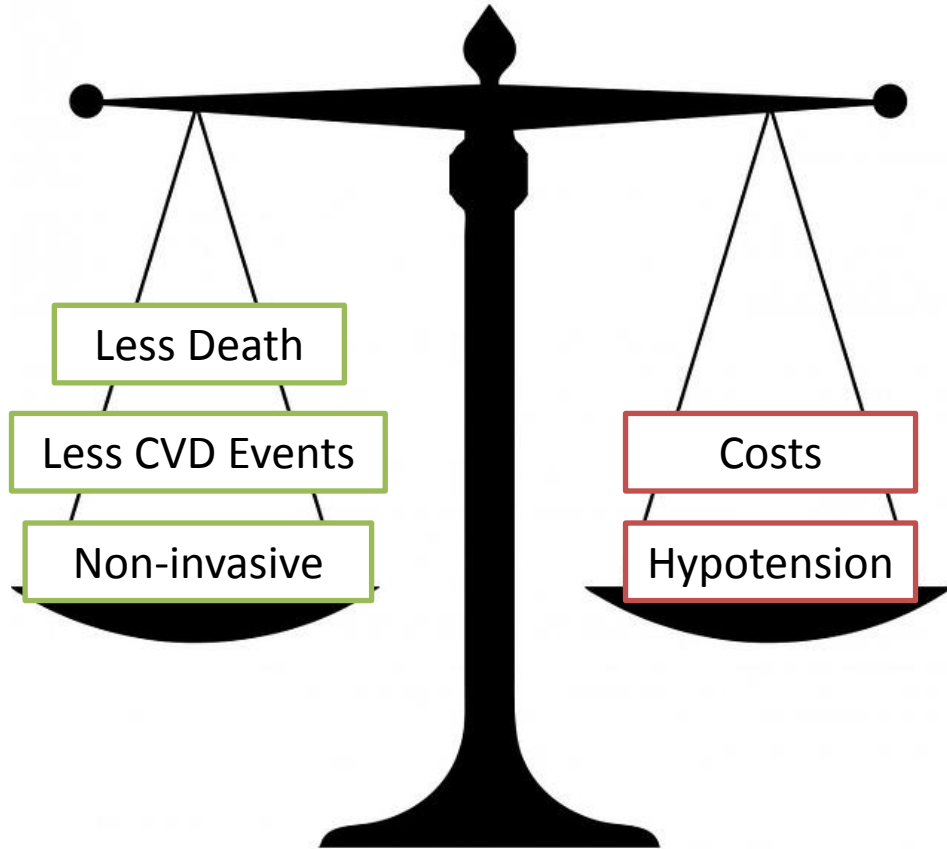
- 1) Medication lists reviewed
- 2) Patients on beta blockers identified
- 3) Medical team (physician, nurse practitioner) given recommendations:

Using ODB Database to assess the penetrance of the intervention

Condition	Algorithm	Code Position	Performance
	Registered Person's Database	N/A	Accuracy 99% ³³
Myocardial Infarction	CIHI-DAD ICD-10 codes I21, I22	Primary Diagnosis	PPV 85% ³⁵
Coronary Revascularization	CIHI-DAD CCI codes I1J50, I1J57, I1J76, I1J54GQAZ	Procedure Codes	PPV 97% ³⁵
Heart Failure	CIHI-DAD code I500	Primary Diagnosis	PPV 84% ³⁶ (Li, Glynn 2011 p700)

CIHI: Canadian Institute for Health Information; DAD: Discharge Abstract Database; CCI: Canadian Classification of Health Interventions; PPV: Positive Predictive Value.

SHOULD WE DO THIS?



Mass email to dialysis units

Find patients on metoprolol or atenolol and switch to bisoprolol

1) Switch to bisoprolol
2) Switch to carvedilol
3) Find HF patients and start beta blocker

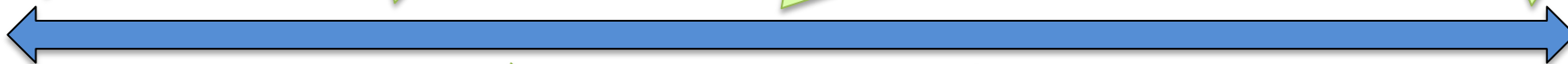
Screen, consent, randomize and follow for 2 years

Cheap and Useless

1) Find patients on metoprolol or atenolol and switch to bisoprolol
2) Use carvedilol for those who qualify

1) Switch to bisoprolol
2) Switch to carvedilol
3) Find HF patients
4) Find HTN patients and start beta blocker

Just do a traditional RCT



Thanks for listening

Panelist

Dan Tascona

Marissa Battistella

Navdeep Tangri

Jovina Bachynski

Craig Lindsay

Role Perspective

Nephrologist

Researcher

Nephrologist

Nurse

Patient