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## Pen & Stent Equality

Data continues to become available to support the American College of Cardiology/American Heart Association Guidelines stating that the *writing of orders for optimal medical treatment (OMT) of stable coronary artery disease (CAD) should be the initial management strategy.*<sup>1</sup> That is, we should give our pens a workout, before we recommend intervention (a stent).

This *Heartbeat* will review results from a follow-up COURAGE trial which included a pre-specified subset of the older folks with stable CAD from the original COURAGE trial. We will then *discuss strategies to use this information—and more to improve outcomes and get paid in clinical practice.*

The **C**linical **O**utcomes **U**tilizing **R**evascularization and **A**ggressive **D**ru**G** **E**valuation (**COURAGE**) trial enrolled 2,287 patients (~ average age 61.5 +/- 10) with significant CAD and inducible ischemia.<sup>2</sup> *When added to OMT, percutaneous coronary intervention (PCI) did not provide any advantage with regard to the primary endpoint of death or MI.* Most experts agree that these results in the largest reported randomized clinical trial in CAD suggest that revascularization can be safely deferred in many patients, provided that they receive OMT—realizing that some will need PCI later (crossover).

The purpose of this new post hoc analysis was to determine if PCI would provide better or worse results when added to OMT in *older* patients (72 +/-5) with stable CAD who are at higher risk for cardiac events.<sup>3</sup> In the 904 patients (40% of the original COURAGE trial)  $\geq 65$  years of age, the addition of PCI to OMT did not improve or worsen clinical outcomes during a median 4.6 year follow-up.

### Conclusions:

- ♥ OMT is as effective in stable CAD patients age  $\geq 65$  years as in patients age  $\leq 65$  years.
- ♥ PCI, when added to OMT, does not reduce clinical events or improve angina relief during long-term follow-up of patients  $\geq 65$  years.
- ♥ The most remarkable observation of the entire COURAGE study was how well OMT worked. Effective treatment can be achieved in older and younger patients with aggressive pharmacologic dosing and therapeutic lifestyle changes (TLC) to relieve angina and to decrease events.
- ♥ This new information supports adherence to the guidelines recommending OMT as the initial treatment for stable CAD regardless of age.
- ♥ *An important caveat is that all of the patients in COURAGE had coronary visualization to exclude left main and severe triple vessel disease.*

## Application to Clinical Practice

We know that PCI in the setting of an acute coronary syndrome saves lives, notably by reducing death or MI early and during long-term follow-up. But its role in the management of stable CAD should be changing based on the COURAGE data and guidelines. Furthermore, in an evaluation of the relative cost and cost effectiveness of PCI from COURAGE, authors report that PCI “adds \$10,125 to a patient’s medical bill without significantly extending life or improving health for someone with chest pain.”<sup>4</sup> Yet it remains one of the most commonly performed procedures in such patients and accounts for approximately one-third to one-half of all PCIs performed annually in the U.S.<sup>5</sup>

## Optimal Medical Therapy (OMT)

Medical therapy in the COURAGE trial was focused on risk factor reduction combined with anti-ischemic therapy. It resulted in very high rates of adherence to national guidelines for blood pressure, lipid levels, exercise, diet, and smoking cessation. Optimal medication use during the study was also high in both treatment groups, with use at 5 years of ACE-inhibitors in 64% of patients, statins in 93%, aspirin in 95%, and beta-blockers in 85%. LDL levels were reduced to a median of 71 mg/dl. Diet, exercise and smoking cessation were also high in both groups. *The reality is that it is very difficult to get patients to comply with the Therapeutic Lifestyle Changes (TLC) component of OMT and to take all the medications at the optimal dosages administered in these studies, even if they can afford them.*

Unfortunately, payment to physicians for the extra time and effort to get patients to comply with OMT isn’t commensurate to that for PCI, and that is undeniably part of the equation.

In COURAGE, OMT encompassed the following, with comments added for present office application.

♥ **Aggressive lipid-lowering:** Goal LDL-C between 60 to 85 mg/dL (simvastatin alone or in

combination with ezetimibe). After the LDL-C target was achieved, an attempt was made to raise the HDL-C to above 40 mg/dL and lower triglycerides to below 150 mg/dL with exercise, ER niacin (Niaspan), or fibrates, alone or in combination.

**Comment:** Based on present information, goal LDL-C should be < 70mg/dL, goal non-HDL-C (TC – HDL-C) should be 15mg/dL higher than LDL-C goal (< 85mg/dL) rather than the NCEP recommended 30 mg/dL higher—more reliable indicator of risk than LDL-C. Lastly and most importantly, an apoB or an LDL-P should be ordered in all with TG/HDL-C axis disorders (▲TG/▼HDL-C) to more accurately determine risk and treatment goals. Goal apoB should be around 60mg/dL and goal LDL-P should be around 750 nmol/L based on ranges of risk from the Framingham Heart Study in these very high-risk patients.<sup>6</sup> All statins are good as long as you get to the above goals. Use generics first and if you can’t get there, go brand! Add combination treatment as needed to get to goals above—first priority—which may also increase HDL-C or decrease TG, realizing there are no proven definitive goals for HDL-C or TG.

♥ **An ACE inhibitor (ACEI) or an angiotensin receptor blocker (ARB):** (lisinopril or losartan) as standard secondary prevention.

**Comment:** The combined vascular (endothelial) benefits—*Teflon effect*—of high-dose ACEIs added to statins are significant. ACEIs (always first choice because of cost) *should be considered in all patients with established vascular disease or at high risk of vascular disease even in patients with normal BP levels.* The most effective doses are moderate to high. Remember in the landmark HOPE trial, ramipril 2.5mg showed no benefit, 5mg showed some and 10mg showed the most benefit.<sup>7</sup>

♥ **Goal BP of < 130/80:**

**Comment:** Lotrel, a benazepril/amlodipine combination, is particularly effective, giving a little more protection in terms of allowing vessels to vasodilate. *The idea is to have healthier blood vessels in addition to lower*

blood pressures—ideal in these patients for improved endothelial function and/or BP control and/or treatment of angina. Additionally, in the landmark ACCOMPLISH trial, which was stopped prematurely at three years, Lotrel reduced the risk of morbidity and mortality by 20% compared with conventional therapy.<sup>8</sup> It is also available generically at the lower doses which you can double-up to get to higher doses (2 5/20s).

♥ **Anti-platelet therapy:** All patients received antiplatelet therapy with aspirin at a dose of 81 to 325 mg per day or 75 mg of clopidogrel/day, if aspirin intolerance was present. Patients undergoing PCI received aspirin and clopidogrel, in accordance with accepted treatment guidelines and established practice standards. No comment.

♥ **Medical anti-ischemic therapy:** including long-acting metoprolol, amlodipine, and isosorbide mononitrate, alone or in combination were used to control angina.

**Comment:** Always remember beta-blocker therapy (obtaining heart rate control to 50-60 BPM) is the key component of controlling angina (metoprolol ER is our preference).

♥ **TLC (*Tender loving care—for the body*)—**  
**Comment:** This is the really hard part to accomplish but easy to explain to the patients. *It is all about the blood vessels and improving endothelial function.*

**Smoking Cessation:** Explain that nicotine makes the blood vessels going to their heart smaller, makes the vessel wall sticky causing clogging, and it decreases the amount of oxygen going through—*Velcro effect*—increasing their risk of a heart attack. This is separate from the pulmonary risks of emphysema and cancer—and \$250/month! Give them an online site and phone number they can use for further help (NJ.QUITNET.COM & 1-866—NJ-STOPS)—our NJ taxes at work! We made a stamper and put with this information on both the prescription, for the patient, and on the chart, for documentation. (Billing Code 99406—modifier 25 [\$20 bill; Medicare pays \$11.11]) If you do this at each office visit (1 in 10 chance/each time of getting them to quit) using medication for

assistance as needed, you should get to at least a 50-60 % quit rate—and hopefully higher!

**Exercise:** Explain the vascular benefits. Exercise keeps your vessels more elastic and younger—“Teflon effect” as opposed to the sedentary stiffer and older “Velcro effect”. Exercise and the resulting fitness is an evidence based treatment resulting in decreased heart attacks, strokes and a longer healthier life.<sup>9</sup> Data also supports decreased dementia and GI cancers, and longer sexual function. *It’s all about “survival of the fittest”-- and those blood vessels.*

**Diet:** Research suggests a low-carbohydrate Mediterranean-style diet that is high in fruits and vegetables, legumes, whole grains, and fish is an “effective alternative” to a low-fat diet, with more favorable effects on lipids and/or glycemic control and weight loss. An analysis of data from the **Nurses’ Health Study** has shown that women whose diets most closely resemble a traditional Mediterranean diet are significantly less likely to develop MI (29% ▼) and stroke (13% ▼).<sup>10</sup> Another recent study, a meta-analysis supports heart-health benefits from a Mediterranean diet.<sup>11</sup>

## **Does everyone need coronary visualization?**

Because all the patients in COURAGE had coronary visualization, it is important to ask this question. In patients who present with chest pain with known CAD, initially we document that their symptom is secondary to angina and then determine how much myocardium is at risk. Exercise treadmill Testing (ETT) in conjunction with myocardial perfusion imaging (MPI) is the best way to accomplish both simultaneously (pharmacologic stress if exercise not feasible).

Coronary visualization is probably not necessary in all unless severe/significant ischemia is detected. **Mild/moderate ischemia in a single segment at a high workload (defined as a low-risk Duke Treadmill Score [Table 1.]) is probably not an indication to define coronary anatomy.** Proceed to maximize OMT.

**Table 1. Duke Treadmill Score (DTS):**

DTS = (Exercise time in minutes) – (5 X ST deviation in mm) – (4 X exercise angina score).
Exercise angina score: 0 = none; 1 = typical angina with exercise; 2 = typical angina as reason for stopping exercise
Risk Stratification: Low risk: $\geq +5$ Moderate risk: -10 to +4 High risk: $\leq -11$

Appropriate documentation of OMT and TLC along with giving patients a copy of a Mediterranean diet should allow most to use billing code 99214 or even 99215 for the visit.

### PCI & FFR & OMT Together

PCI is very important component of treatment for many with CAD. There is little argument about the benefits and superiority of PCI in emergency coronary situations to save lives on top of OMT. Many patients whom initially receive OMT will later need PCI. In those deemed at higher-risk by non-invasive testing coronary visualization should be performed.

Based on the results of the FAME (Fractional Flow Reserve (FFR) Versus Angiography for Multivessel Evaluation) trial—and data extending the results to 18 months—experts are recommending measuring FFR in 50%-80% obstructive coronary lesions to measure functional severity of coronary lesions.<sup>12</sup> This innovative new diagnostic tool improves outcomes and also saves money because of decreased events, decreased interventions (not using stents in patients whom will not benefit) and negating the need for probable lifetime Plavix which is life changing for the patient. *Evidence supports always using our pens for OMT as well as selectively measuring FFR and using intervention(stents) where indicated.*

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