Is There a Gender Difference in Outcome of Percutaneous Coronary Intervention in Diabetic Patients in the Drug-Eluting Stent Era?

Thesis

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ABSTRACT

Ischemic heart disease (IHD) has historically been considered a male disease. However, IHD is the leading cause of death among *both* men and women. In the USA, more women than men die annually from IHD. Despite the established benefits of PCI in reducing fatal and nonfatal ischemic complications, only an estimated 33% of annual PCIs were performed in women (in USA).

The earliest trials evaluating PCI outcomes enrolled primarily men and the results were generally extrapolated to women. Some later studies proved such extrapolation to be inappropriate. These studies suggested there was a female sex-specific increased morbidity and mortality following PCI.

Recent advances in angioplasty equipment and technique, adjunctive pharmacotherapy, and increased use of stents have improved outcomes in both women and men. Nevertheless, some authors claim that women still have worse clinical outcomes than those of men. According to some studies, increased adverse outcomes of women undergoing PCI appears to be related to: smaller body surface area & vessel size, older age at presentation, and heavier burden of comorbidities at presentation, eg: **diabetes mellitus (DM)**, hypertension, chronic kidney disease, obesity & metabolic syndrome. Adjustments for these factors often eradicated any sex differences.

Diabetic patients are known to have an aggressive form of atherosclerosis with less favorable long-term survival after PCI. DM is frequently identified as an independent predictor of in-stent restenosis (ISR). Relatively recently, drug-eluting stents (DES) were introduced. DES showed promising results compared to bare-metal stents (BMS) in many patient subgroups, particularly diabetics. Early data suggest favorable long-term results in both men and women. Nevertheless, women continue to represent a small sample (15 to 38%) of the population in studies of PCI, and still relatively few sex-specific data exist.

The aim of this study was to compare the short- and long-term outcomes between diabetic men and women after elective PCI using DES. The study included 50 diabetic males and 50 diabetic females, all of whom had DES deployed during elective PCI. The clinical endpoints were death,

myocardial infarction (MI), target vessel revascularization (TVR), or target lesion revascularization (TLR) at 6 months and at any time during the follow-up period.

In this study, it was found that both diabetic females and males have a low and equal incidence of adverse events following PCI using DES. *Gender per se does not affect the outcome of PCI in diabetic patients.*

None of the former studies found in the literature were strictly dedicated to the comparison of elective PCI outcomes with *DES* in *diabetic* males and *diabetic* females. This makes the current study different from all previous studies regarding the studied population (all diabetic Egyptians), the stents used (all FDA-approved DES), and the clinical setting in which PCI was performed (all elective, with no primary or emergency PCIs). When diabetic females were compared to diabetic males of very similar demographic and risk factor/comorbidity profiles, very similar clinical settings, and when all patients had DES implanted, there were no significant differences in their short- or long-term PCI outcomes.