

Sex and racial disparities in fractional flow reserve-guided percutaneous coronary intervention utilization: a 5-year national experience

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Submitted Mar 03, 2018. Accepted for publication Mar 11, 2018.

doi: 10.21037/atm.2018.03.15

View this article at: <http://dx.doi.org/10.21037/atm.2018.03.15>

FAME (Fractional Flow Reserve versus Angiography for Multivessel Evaluation) and FAME-2 trials have demonstrated the improved outcomes with fractional flow reserve (FFR)-guided percutaneous coronary interventions (PCI) and established the essential role of FFR to reduce major cardiovascular events (1,2). However, FFR adoption is not up to the mark in many centers and the data are almost non-existent regarding racial and sex disparities in FFR-guided PCI utilization. Therefore, we proposed to assess the trends of racial and sex disparities in FFR-guided PCI utilization over the 5-year period between 2010 and 2014.

We studied the National Inpatient Sample (NIS) database between the years 2010 and 2014. The NIS, the largest all-payer in-patient sample of admissions throughout the US that is directed by the Healthcare Cost and Utilization Project (HCUP), represents over 95% US population (3). It contains data from more than 7 million hospital stays each year unweighted whereas weighted, it estimates more than 35 million admissions nationally. Using International Classification of Diseases procedure codes (ICD-9 CM) inpatient admissions for PCI (00.66), including bare-metal (36.06), drug-eluting stents (36.07) and FFR (00.59) utilization between 2010 and 2014 were examined. We used discharge weights provided by HCUP to achieve national estimates.

The overall trend of in-hospital FFR-guided PCI utilization steadily increased from 3,970 in 2010 to 12,035 procedures in 2014, which represents a 3.03-fold rise. The number of FFR-guided PCI also increased from 2,654 in

2010 to 7,835 in 2014 for men (2.5-fold increase), whereas for women it increased from 1,316 in 2010 to 4,200 in 2014 (3.19 fold increase) ($P<0.0001$) (Figure 1A).

Asian undergoing PCI had 4.5-fold higher chance of stenosis assessment with FFR (61 in 2010 to 280 in 2014, 4.59-fold increase), followed by African American (262 in 2010 to 1,080 in 2014, 4.12-fold increase), Native American (23 in 2010 to 90 in 2014, 3.91-fold increase) and others (110 in 2010 to 430 in 2014, 3.91-fold increase). The Hispanic race indicated least rise in FFR-guided PCI utilization (290 in 2010 to 860 in 2014, 2.96-fold increase) ($P<0.0001$) (Figure 1B).

The study has potential limitations. Administrative errors in the coding cannot be ignored. Although we have the codes for both FFR and PCI, it is not possible to distinguish if procedures were performed on the same or on the different coronary vessels.

Concisely, there has been overall increasing trend towards FFR-guided PCI utilization in the 5-year period between 2010 and 2014. Females showed the greater ascent in utilization rates as compared to males. Asians were more likely to have FFR-guided PCI whereas Hispanic indicated lowest growing trend towards FFR-guided PCI utilization. Future studies ought to be planned to survey the impact of these racial disparities on short and long-term PCI outcomes.

Acknowledgements

None.

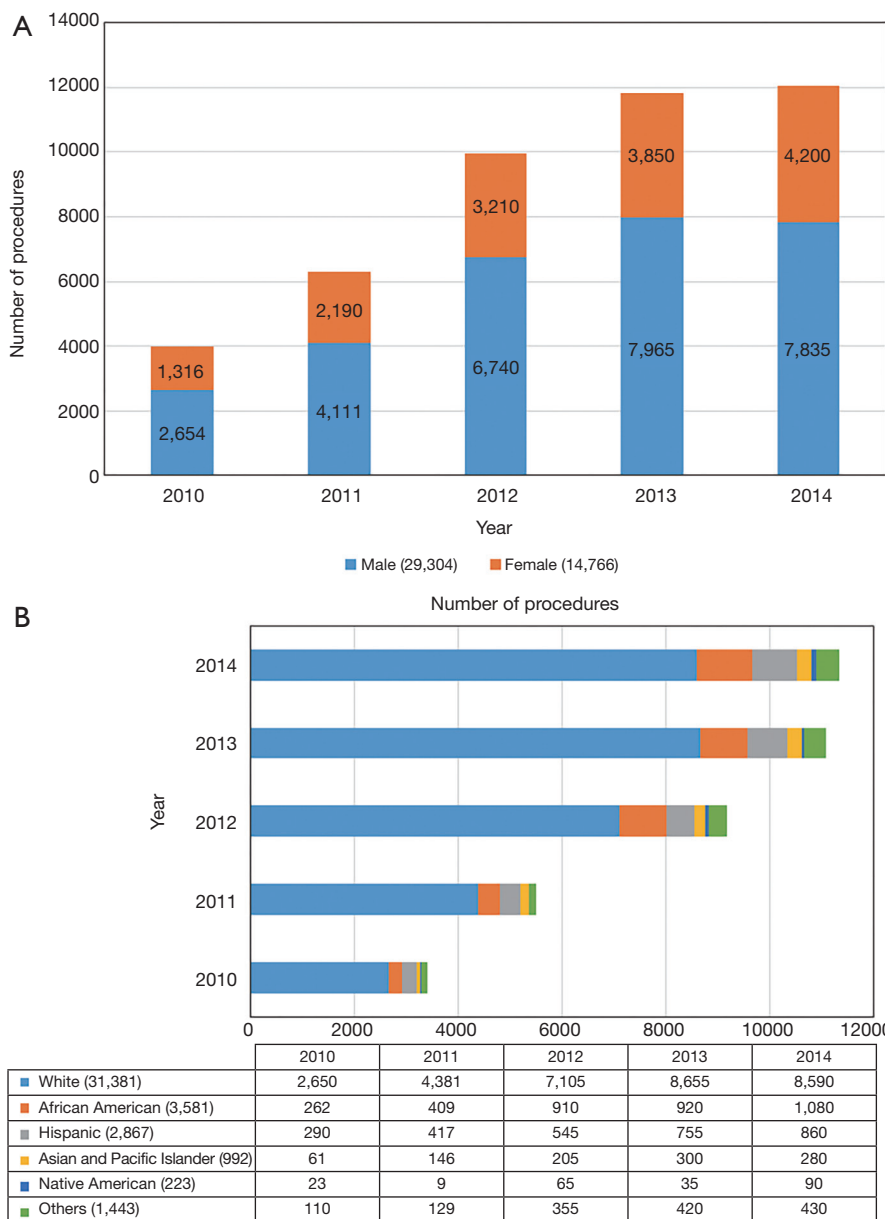


Figure 1 Sex and racial disparities in FFR-guided PCI utilization: a 5-year national inpatient analysis. (A) Trends of FFR-guided PCI utilization by sex; (B) trends of FFR-guided PCI utilization by race. FFR, fractional flow reserve; PCI, percutaneous coronary interventions.

Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

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Cite this article as: Desai R, Mirza O, Sachdeva R, Kumar G. Sex and racial disparities in fractional flow reserve-guided percutaneous coronary intervention utilization: a 5-year national experience. *Ann Transl Med* 2018;6(10):198. doi: 10.21037/atm.2018.03.15