1) MORE WOMEN THAN MEN DEVELOP HF OR DIE AFTER STEMIS

Women are more likely than men to develop heart failure (HF) both during and after STEMI and are also more likely to die, according to a large Canadian study. The increased risk was not seen among women with NSTEMI.

The findings suggest that while “differences in outcomes have slowly narrowed over time and improved, they’re still not zero yet,” said lead author Justin A. Ezekowitz, MBCh, MSc (University of Alberta, Canada). He added that few prior studies looking at gender disparity have focused on post-MI HF risk.

In the paper, published online November 30, 2020, ahead of print in Circulation, Ezekowitz and colleagues say that in addition to better treatment strategies, there is a need for longitudinal surveillance and intervention before HF develops in those most at risk, particularly women.

Not surprisingly, women in the study were more likely than their male counterparts to be older and to have a more complicated medical history but less-severe disease on angiography. When Ezekowitz and colleagues looked at medication prescribing, they found that women were less likely than men to receive beta-blockers, ACE inhibitors or ARBs, lipid-lowering agents, or P2Y12 receptor antagonists. Women also were less likely to undergo diagnostic angiography and were less often attended to in the hospital by a cardiovascular specialist, regardless of their MI presentation.

Ezekowitz said while the older age and geographic availability of specialists may explain some of the latter, this can have important implications for follow-up care.

“If somebody is seen in the hospital by a cardiovascular specialist, they’re also then more likely to be seen as an outpatient by a cardiovascular specialist,” he noted.

Higher Death Rates for Women at 1 and 5 Years

For the study, Ezekowitz and colleagues examined outcomes data for 45,064 patients hospitalized between 2002 and 2016 with a first STEMI or NSTEMI and followed for at least 5 years after discharge. Compared with men, women were about 10 years older and had more comorbidities, including cerebrovascular disease, chronic obstructive pulmonary disease, hypertension, and A-fib. Regardless of whether they presented with STEMI or NSTEMI, men were more likely than women to undergo PCI or CABG.

Women who did undergo angiography were less likely than men to have left main disease, two-vessel with proximal left anterior descending disease, or three-vessel disease compared with men (33.4% vs. 40.9%; P < 0.0001), and they more likely to have single-vessel disease or nonobstructive CAD (39.6% vs. 29.1%; P < 0.0001).

In-hospital mortality was higher for women than men in patients with STEMI (9.4% vs 4.5%) and in those with NSTEMI (4.7% vs 2.9%; P < 0.0001 for both). The higher mortality rate for women remained significant for STEMI after adjustment (adjusted OR 1.42; 95% CI 1.24-1.64) but was no longer significant for NSTEMI. After discharge, all-cause mortality rates were 24.6% in women with STEMI versus 14.5% in men with STEMI; with NSTEMI, the rates were 29.9% versus 20.2%, respectively (P < 0.0001 for both).

Rates of in-hospital HF were higher for women than men for both STEMI (adjusted OR 1.26; 95% CI 1.13-1.40) and NSTEMI (adjusted OR 1.20; 95% CI 1.1-1.32). At 5 years following discharge for the index event, hospitalization for HF had occurred in 22.5% of women versus 14.9% of men with STEMI, and in 23.2% of women versus 15.7% of men with NSTEMI (P < 0.0001 for both). There were no differences, however, between women and men for risk of hospitalization for MI or stroke after discharge from the index MI.
“Given its frequency, further attention should be paid to all patients with acute coronary syndromes for the prevention of future HF outcomes,” Ezekowitz and colleagues say.

2) FEMALE DOCTORS LESS LIKELY TO BE PROMOTED TO UPPER FACULTY RANKS

WEDNESDAY, Dec. 2, 2020 (HealthDay News) -- Women physicians in academic medical centres are less likely than men to be promoted to upper faculty ranks, according to a study published in the Nov. 26 issue of the New England Journal of Medicine.

Kimber P. Richter, Ph.D., M.P.H., from the University of Kansas School of Medicine in Kansas City, and colleagues merged data from the Association of American Medical Colleges on all medical school graduates from 1979 through 2013 with faculty data through 2018 to examine promotion to upper faculty ranks among women versus men. Data were included for 559,098 graduates from 134 U.S. medical schools.

The researchers found that fewer women than expected were promoted to the rank of associate or full professor or were appointed to the post of department chair in most of the cohorts. After adjustment for graduation year, race or ethnic group, and department type, in analyses that included all the cohorts, women assistant professors were less likely to be promoted to associate professor than their male counterparts (hazard ratio, 0.76). For promotions to full professor and appointments to department chair, similar sex disparities were seen (hazard ratios, 0.77 and 0.46, respectively). Over time, these sex differences in promotions and appointments did not diminish and were not smaller in later versus earlier cohorts.

“In an era in which women have closed the sex gap with respect to medical school admission, women remain underrepresented in upper faculty ranks,” the authors write.

3) ASSOCIATION OF SEDENTARY TIME AND INCIDENT HEART FAILURE HOSPITALIZATION IN POSTMENOPAUSAL WOMEN

Abstract

Background:

The 2018 US Physical Activity Guidelines recommend reducing sedentary behavior (SB) for cardiovascular health. SB’s role in heart failure (HF) is unclear.

Methods:

We studied 80,982 women in the Women’s Health Initiative Observational Study, aged 50 to 79 years, who were without known HF and reported ability to walk ≥1 block unassisted at baseline. Mean follow-up was 9 years for physician-adjudicated incident HF hospitalization (1402 cases). SB was assessed repeatedly by questionnaire. Time-varying total SB was categorized according to awake time spent sitting or lying down (≤6.5, 6.6–9.5, >9.5 h/d); sitting time (≤4.5, 4.6–8.5, >8.5 h/d) was also evaluated. Hazard ratios and 95% CI were estimated using Cox regression.

Results:

Controlling for age, race/ethnicity, education, income, smoking, alcohol, menopausal hormone therapy, and hysterectomy status, higher HF risk was observed across incremental tertiles of time-varying total SB (hazard ratios [95% CI], 1.00 [referent], 1.15 [1.01–1.31], 1.42 [1.25–1.61], trend P<0.001) and sitting time (1.00 [referent], 1.14 [1.01–1.28], 1.54 [1.34–1.78], trend P<0.001). The inverse trends remained significant after further controlling for comorbidities including time-varying myocardial infarction and coronary revascularization (hazard ratios: SB, 1.00, 1.11, 1.27; sitting, 1.00, 1.09, 1.37, trend P<0.001 each) and for baseline physical activity (hazard ratios: SB 1.00, 1.10, 1.24; sitting 1.00, 1.08, 1.33, trend P<0.001 each). Associations with SB exposures were not different according to categories of baseline age, race/ethnicity, body mass index, physical activity, physical functioning, diabetes, hypertension, or coronary heart disease.
Conclusions:
SB was associated with increased risk of incident HF hospitalization in postmenopausal women. Targeted efforts to reduce SB could enhance HF prevention in later life.

4) VALVE-IN-VALVE AND VALVE-IN-RING TRANSCATHETER MITRAL VALVE IMPLANTATION IN WOMEN CONTEMPLATING PREGNANCY

Abstract

Background:
Transcatheter mitral valve implantation (TMVI) is emerging as an alternative to surgical mitral valve replacement in selected high-risk patients. Delaying definitive mechanical mitral valve replacement and the constraints of anticoagulation thanks to TMVI may be an attractive option in young women contemplating pregnancy and suffering from failure of mitral bioprosthesis or annuloplasty. The aim of the study was to evaluate the possibility, safety, and outcomes of pregnancy after TMVI in this population.

Methods:
From 2013 to 2019, 12 young women contemplating pregnancy underwent transseptal valve-in-valve or valve-in-ring TMVI using the Edwards SAPIEN XT/3 valves and were prospectively followed up at 1 month, 6 months, 1 year, and yearly thereafter.

Results:
Mean age of the patients was 30±6 years. Bioprosthesis degeneration was observed in 7 cases and annuloplasty failure in 5. Three valve-in-ring patients required the implantation of a second valve, which led to an overall procedural success rate of 75%. One delayed left ventricular outflow tract obstruction required elective surgical mitral valve replacement. At 6 months/1 year, 83% of the patients were in New York Heart Association classes I/II. Mitral regurgitation was ≤2+ in all the cases and mean gradient was 7±2 mm Hg. Four patients could complete 6 full-term pregnancies. One symptomatic thrombosis occurred and resolved under aspirin and anticoagulation therapy. All others pregnancies were uneventful. Predelivery mean gradient was 11 mm Hg, and systolic pulmonary artery pressure was 32 mm Hg. There were 4 vaginal deliveries and 2 cesarians. Newborns were alive and healthy. At last follow-up, there was no death, and 3 patients required elective surgical mitral valve replacement at 6- to 54-month follow-up.

Conclusions:
Our study suggests that, in young women, transseptal TMVI to treat failing bioprostheses may result in good short-term outcomes that allow uneventful pregnancies. The results are less favorable in women with failed annuloplasty rings.

5) MENOPAUSE TRANSITION AND CVD RISK: IMPLICATIONS FOR TIMING OF EARLY PREVENTION

Abstract

Cardiovascular disease (CVD) is the leading cause of death in women, who have a notable increase in the risk for this disease after menopause and typically develop coronary heart disease several years later than men. This observation led to the hypothesis that the menopause transition (MT) contributes to the increase in coronary heart disease risk. Over the past 20 years, longitudinal studies of women traversing menopause have contributed significantly to our understanding of the relationship between the MT and CVD risk. By following women over this period, researchers have been able to disentangle chronological and ovarian aging with respect to CVD risk. These studies have documented distinct patterns of sex hormone changes, as well as adverse alterations in body composition, lipids and lipoproteins, and measures of vascular health over the MT, which can increase a woman’s risk of developing CVD postmenopausally. The reported findings underline the significance of the MT as a time of accelerating CVD risk, thereby emphasizing the importance of monitoring women’s health during midlife, a critical window for implementing early intervention strategies to reduce CVD risk. Notably, the 2011 American Heart Association guidelines for CVD prevention in women (the latest
sex-specific guidelines to date) did not include information now available about the contribution of the MT to increased CVD in women. Therefore, there is a crucial need to discuss the contemporary literature on menopause and CVD risk with the intent of increasing awareness of the significant adverse cardiometabolic health–related changes accompanying midlife and the MT. This scientific statement provides an up-to-date synthesis of the existing data on the MT and how it relates to CVD.

6) SEX DIFFERENCES IN CRUDE MORTALITY RATES AND PREDICTIVE VALUE OF INTENSIVE CARE UNIT-BASED SCORES WHEN APPLIED TO THE CARDIAC INTENSIVE CARE UNIT

Abstract

Background:

Limited data exists regarding sex differences in outcome and predictive accuracy of intensive care unit-based scoring systems when applied to cardiac intensive care unit patients.

Methods:

We reviewed medical records of patients admitted to cardiac intensive care unit from 1 January 2011–31 December 2016. Sex differences in mortality rates and the performance of intensive care unit-based scoring systems in predicting in-hospital mortality were analyzed. Calibration was assessed by the Hosmer-Lemeshow test and locally weighted scatterplot smoothing curves. Discrimination was assessed using the c statistic and receiver-operating characteristic curve.

Results:

Among 6963 patients, 2713 (39%) were women. Overall in-hospital and cardiac intensive care unit mortality rates were similar in women and men (9.1% vs 9.4%, p=0.67 and 5.9% vs 6%, p=0.88, respectively) and in age and major diagnosis subgroups. Of the scoring systems, Acute Physiology and Chronic Health Evaluation III and Sequential Organ Failure Assessment had poor calibration (Hosmer-Lemeshow p value <0.001), while Simplified Acute Physiology Score II performed better (Hosmer-Lemeshow p value 0.09), in both women and men. All scores had good discrimination (C statistics >0.8). In the subgroups of acute myocardial infarction and heart failure patients, all scores had good calibration (Hosmer-Lemeshow p>0.001) and discrimination (C statistic >0.8) while in diagnosis subgroups with highest mortality, the calibration varied among scores and by sex, and discrimination was poor.

Conclusions:

No sex differences in mortality were seen in cardiac intensive care unit patients. The mortality predictive value of intensive care unit-based scores is limited in both sexes and variable among different subgroups of diagnoses.

7) PREMATURE MENOPAUSE LINKED TO RISK OF CLONAL HEMATOPOIESIS OF INDETERMINATE POTENTIAL

Premature menopause, especially natural premature menopause, is independently associated with clonal hematopoiesis of indeterminate potential (CHIP) in postmenopausal women, according to a study published in Circulation.

Researchers sought to determine whether premature menopause, both overall and stratified by natural and surgical premature menopause, was associated with an elevated risk of CHIP, including CHIP with incident coronary artery disease (CAD) events.

The study authors included 11,495 women (aged 40 to 70 years, 100% White) from the UK Biobank and 8,111 women (aged 50 to 79 years, 83% White) from the Women’s Health Initiative (WHI) with
whole genome sequences. Premature menopause was defined as natural or surgical menopause occurring before age 40. Primary outcomes were the presence of any CHIP and CHIP with variant allele frequency (VAF) greater than 0.1, and secondary analyses assessed natural versus surgical premature menopause and gene-specific CHIP subtypes.

Among the overall total of 19,606 women, 418 (2.1%) had natural premature menopause and 887 (4.5%) had surgical premature menopause. At blood draw for whole exome and whole genome sequencing, the mean age was 60.1 years (SD, 5.2) for women in the UK Biobank and 68.3 (SD, 6.6) years for those in the WHI cohort. The prevalence of CHIP among postmenopausal women with a history of premature menopause was 8.8% compared with 5.5% in those without a history of premature menopause ($P<.001$), across the 2 cohorts. After conducting multivariable adjustment, the investigators found that premature menopause was independently associated with CHIP (all CHIP: odds ratio [OR] 1.36, 95% CI, 1.10–1.68, $P=.004$; CHIP with VAF $>$0.1: OR 1.40, 95% CI, 1.10–1.79, $P=.007$).

8) CORONARY FLOW VELOCITY RESERVE PREDICTS ADVERSE PROGNOSIS IN WOMEN WITH ANGINA AND NO OBSTRUCTIVE CORONARY ARTERY DISEASE: RESULTS FROM THE IPOWER STUDY

Abstract

Aims
Many patients with angina, especially women, do not have obstructive coronary artery disease (CAD) yet have impaired prognosis. We investigated whether routine assessment of coronary microvascular dysfunction (CMD) is feasible and predicts adverse outcome in women with angina and no obstructive CAD.

Methods and results
After screening 7253, we included 1853 women with angina and no obstructive CAD on angiogram who were free of previous CAD, heart failure, or valvular heart disease in the prospective iPOWER (Improving Diagnosis and Treatment of Women with Angina Pectoris and Microvascular Disease) study. CMD was assessed by Doppler echocardiography in the left anterior descending artery as coronary flow velocity reserve (CFVR). Patients were followed for a composite outcome of cardiovascular death, myocardial infarction (MI), heart failure, stroke, and coronary revascularization. CFVR was obtained in 1681 patients (91%) and the median CFVR was 2.33 (quartiles 1–3: 2.00–2.74). During a median follow-up of 4.5 years, 96 events occurred. In univariate Cox regression, CFVR was associated with the composite outcome [hazard ratio (HR) 1.07 [95% confidence interval (CI) 1.03–1.11] per 0.1 unit decrease in CFVR; $P<0.001$], primarily driven by an increased risk of MI and heart failure. Results remained significant in multivariate analysis [HR 1.05 (95% CI 1.01–1.09) per 0.1 unit decrease in CFVR; $P=0.01$]. In exploratory analyses, CFVR was also associated with the risk of repeated hospital admission for angina and all-cause mortality.

Conclusion
Assessment of CFVR by echocardiography is feasible and predictive of adverse outcome in women with angina and no obstructive CAD. Results support a more aggressive preventive management of these patients and underline the need for trials targeting CMD.

9) GENDER-BASED DIFFERENCES IN OUTCOMES FOLLOWING OUT-OF-HOSPITAL CARDIAC ARREST

Abstract

Background: Studies examining gender-based differences in outcomes of out-of-hospital cardiac arrest patients have demonstrated that despite a higher likelihood of return of spontaneous circulation, women do not have higher survival.

Methods: Patients successfully resuscitated from out-of-hospital cardiac arrest enrolled in the Continuous Chest Compression trial were included. Hierarchical multivariable logistic regression models were constructed to evaluate the association between gender and survival after adjustment for age, gender, cardiac arrest rhythm, witnessed status, bystander cardiopulmonary resuscitation, episode location, epinephrine dose, emergency medical services response time and duration of resuscitation. Do Not Resuscitate (DNR) and withdrawal of life-sustaining therapy (WLST) order status
were used to assess whether differences in post resuscitation outcomes were modified by baseline prognosis. The analysis was replicated among Amiodarone, Lidocaine, or Placebo Cardiac Arrest trial participants.

Results: Among 4,875 successfully resuscitated patients, 1,825 (37.4%) were women and 3,050 (62.6%) were men. Women were older (67.5 vs. 65.3 years), received less bystander cardiopulmonary resuscitation (49.1% vs. 54.9%), and had a lower proportion of cardiac arrests that were witnessed (55.1% vs. 64.5%) or had shockable rhythm (24.3% vs. 44.6%, p<0.001 for all). A significantly higher proportion of women received DNR orders (35.7% vs. 32.1%, p=0.009) and had WLST (32.8% vs. 29.8%, p=0.03). Discharge survival was significantly lower in women (22.5% vs. 36.3%, p<0.001, adjusted odds ratio [OR] 0.78, 95% confidence interval [C.I.] 0.66 - 0.93, p=0.005). The association between gender and discharge survival was modified by DNR and WLST order status such that women had significantly reduced discharge survival among patients who were not made DNR (31.3% vs. 49.9%, p=0.005, adjusted OR 0.74, 95% C.I. 0.60 - 0.91) or did not have WLST (32.3% vs. 50.7%, p=0.002, adjusted OR 0.73, 95% C.I. 0.60 - 0.89). In contrast, no gender difference in survival was noted among patients receiving a DNR order (6.7% vs. 7.4%, p=0.90) or had WLST (2.8% vs. 2.4%, p=0.93). Consistent patterns of association between gender and post-resuscitation outcomes were observed in the secondary cohort.

Conclusions: Among resuscitated out-of-hospital cardiac arrest patients, discharge to survival was significantly lower in women compared with men especially among patients considered to have a favorable prognosis.

10) VALVE-IN-VALVE AND VALVE-IN-RING TRANSCATHETER MITRAL VALVE IMPLANTATION IN WOMEN CONTEMPLATING PREGNANCY

Background:
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