

ASE, ACEP Tout Benefits of Cardiac Ultrasound

BY JEFFREY S. EISENBERG

FROM THE JOURNAL OF THE AMERICAN SOCIETY OF ECHOCARDIOGRAPHY

ST. LOUIS – Focused cardiac ultrasonography, or FOCUS, can expedite the diagnostic evaluation of cardiac symptoms at the patient's bedside – allowing for earlier, possibly life-saving interventions – and has become a fundamental tool in the emergency department, ac-

ording to a joint consensus statement of the American Society of Echocardiography and American College of Emergency Physicians.

FOCUS enables clinicians to determine whether pericardial effusion is present, assess global cardiac systolic function, identify marked right and left ventricular enlargement, and assess intravascular volume, according to the statement (J. Am. Soc. Echocardiogr. 2010;23:1225-30).

It can provide guidance for pericardiocentesis and confirm the placement of transvenous pacing wire.

The statement outlines specific clinical scenarios in which FOCUS can affect clinical decision making and patient care:

► **Cardiac trauma.** Performed as part of the FAST (focused assessment with sonography in trauma) exam, FOCUS can help identify possible cardiac injury, such as cardiac hemorrhage, that re-

quires surgical intervention by looking for the presence of pericardial effusion as well as the presence or absence of organized ventricular contractility. FOCUS also can help diagnose cardiac contusions by looking for depressed wall motion and decreased myocardial contractility.

► **Cardiac arrest.** Clinicians can improve the outcome of cardiopulmonary resuscitation by using FOCUS to distinguish among asystole, pulseless electrical

Effient is indicated to reduce the rate of thrombotic CV events (including stent thrombosis) in UA/NSTEMI patients who are to be managed with PCI and in STEMI patients when managed with primary or delayed PCI.



REDUCTIONS IN THROMBOTIC CV EVENTS IN TRITON-TIMI 38 INCLUDING HIGH-RISK PATIENTS SUCH AS THOSE WITH DIABETES^{*†,2}

The reduction in the primary composite endpoint of CV death, nonfatal MI, or nonfatal stroke in patients with diabetes treated with Effient plus ASA compared with Plavix plus ASA was consistent with those observed in the overall UA/NSTEMI and STEMI populations



^{*}As measured by reduction in the primary composite endpoint of CV death, nonfatal MI, or nonfatal stroke. [†]The LD of Effient was 60 mg followed by a 10-mg daily dose (plus ASA) and the loading dose of Plavix was 300 mg followed by a 75-mg daily dose (plus ASA). [‡]Relative risk reduction. [§]Absolute risk reduction.

- Difference in treatments was primarily driven by a significant reduction in nonfatal MIs, with no significant difference in CV death or nonfatal stroke¹
 - In the overall study population, approximately 40% of MIs occurred periprocedurally and were detected solely by changes in CK-MB
- In TRITON-TIMI 38, the LD of Plavix was delayed relative to the placebo-controlled trials that supported its approval for ACS
- TRITON-TIMI 38 was not designed or powered to demonstrate independent efficacy or safety in the diabetes subgroup

SELECTED SAFETY, INCLUDING SIGNIFICANT BLEEDING RISK

Effient can cause significant, sometimes fatal, bleeding. In TRITON-TIMI 38, overall rates of non-CABG TIMI major or minor bleeding were significantly higher with Effient plus ASA (4.5%) compared with Plavix plus ASA (3.4%). In patients who underwent CABG (n=437), the rates of CABG-related TIMI major or minor bleeding were 14.1% with Effient plus ASA and 4.5% with Plavix plus ASA.

activity (PEA), and pseudo-PEA. FOCUS also can help identify causes of PEA, allowing for earlier treatment and the return of spontaneous circulation.

FOCUS can improve outcomes by determining a cardiac cause of the cardiac arrest and by guiding lifesaving procedures at the patient's bedside.

► **Hypotension/shock.** FOCUS can help the clinician determine if the shock is cardiogenic, thus allowing for aggressive early intervention to prevent organ dysfunction. In this case, the exam looks for the presence of pericardial effusion and evaluates global cardiac function,

right ventricular size, and inferior vena cava size/collapsibility as a marker of central venous pressure.

FOCUS can determine the presence, size, and functional relevance of a pericardial effusion as a cause of hemodynamic instability. Also, it can expedite pericardiocentesis while reducing complications and increasing the success rate.

► **Dyspnea/shortness of breath.** FOCUS can help rule out pericardial effusion, identify global left ventricular systolic dysfunction, and assess the size of the right ventricle as a proxy for indicating the presence or absence of a hemo-

dynamically significant pulmonary embolus. Still, a complete evaluation of these patients should include comprehensive echocardiography to evaluate diastolic function and pulmonary artery pressures, and to help diagnose pericardial and valvular heart disease.

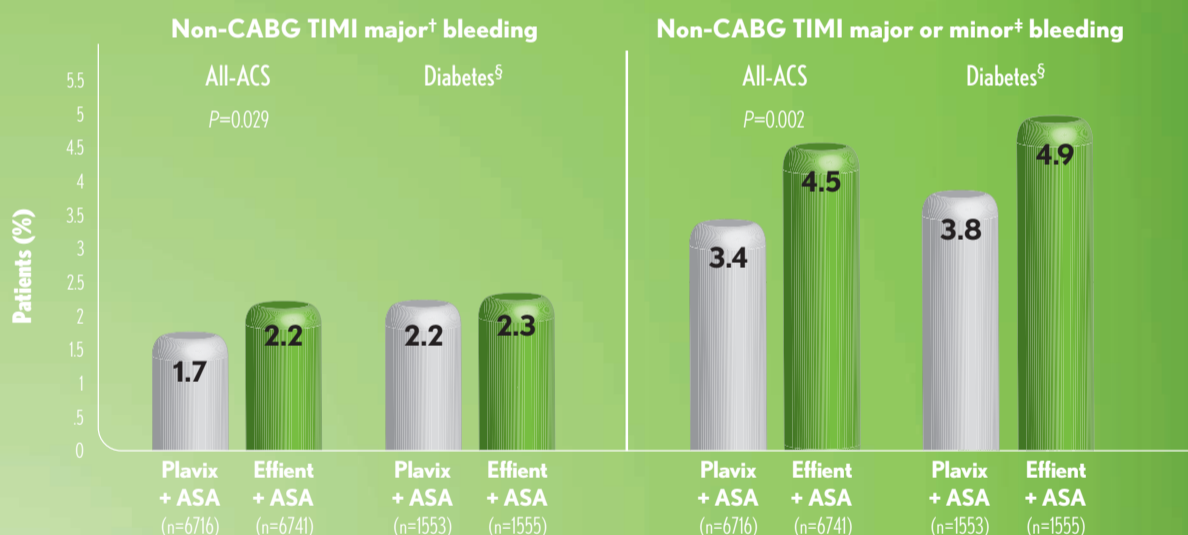
► **Chest pain.** FOCUS may be helpful in the evaluation of patients with a hemodynamically significant pulmonary embolus or the screening of patients for aortic dissection. When aortic dissection is suspected, the clinician can use FOCUS to look for pericardial or pleural effusions and to assess the diameter of the aortic

root. (An aortic root diameter greater than 4 cm is suspicious for type A dissection.) The authors caution that a negative FOCUS exam does not definitively rule out aortic dissection; additional imaging and diagnostic studies are necessary.

FOCUS training should include the presentation of positive and negative cases of various cardiac pathologies. Any program that uses FOCUS should have a quality assurance program that reviews scan quality by comparing interpretations with pathological and surgical data, clinical outcomes, and final diagnoses. ■



NON-CABG-RELATED BLEEDING: TRITON-TIMI 38 ALL-ACS POPULATION, INCLUDING DIABETES SUBGROUP*1,4



*Observed event rates. [†]Intracranial hemorrhage or clinically overt bleeding associated with a fall in hemoglobin ≥ 5 g/dL. [‡]Clinically overt bleeding associated with a fall in hemoglobin of ≥ 3 g/dL but < 5 g/dL. [§]P value not provided because the trial was not designed to prospectively evaluate bleeding differences in subgroups.

- In TRITON-TIMI 38, overall rates of non-CABG TIMI major and non-CABG TIMI major or minor bleeding were significantly higher with Effient plus ASA compared with Plavix plus ASA¹
- In patients who underwent CABG (n=437), the rates of CABG-related TIMI major or minor bleeding were 14.1% with Effient plus ASA and 4.5% with Plavix plus ASA. Do not start Effient in patients likely to undergo urgent CABG¹
- Patients at highest risk for non-CABG TIMI major or minor bleeding were those ≥ 75 years of age and/or those < 60 kg (132 lb)¹
- Effient is contraindicated in patients with active pathological bleeding, such as from a peptic ulcer or intracranial hemorrhage (ICH), or a history of transient ischemic attack (TIA) or stroke, and in patients with hypersensitivity to prasugrel or any component of the product¹
 - Patients who experience a stroke or TIA while on Effient generally should have therapy discontinued

Please see Important Safety Information, including Boxed Warning regarding bleeding risk, on previous page. See also Brief Summary of Prescribing Information on subsequent pages.