Pertinent postpericardiotomy syndrome specifics

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See related article on pages 1324-9.

Truth can be stated in a thousand different ways, yet each one can be true.

—Swami Vivekananda

In this issue of the *Journal*, Lehto and colleagues¹ publish their study on the incidence and risk factors of postpericardiotomy syndrome (PPS) requiring medical attention, the Finland Postpericardiotomy Syndrome (FinPPS) study. Readers of the *Journal* will find this article of interest because it describes PPS as it relates to the reality of clinical practice. This was a retrospective analysis of 699 patients undergoing isolated coronary artery bypass grafting at a single institution in the years 2008 and 2009. None of the patients received colchicine as a preoperative medication. Follow-up was complete for 688 (98%) patients and averaged 5.3 ± 1.0 years.

Lehto and colleagues¹ used the currently accepted definition of PPS that required the presence of at least 2 of the following criteria: fever without alternative causes, pleuritic chest pain, friction rub, evidence of new or worsening pleural effusion, and evidence of new or worsening pericardial effusion. Applying these criteria in a retrospective analysis, the incidence of PPS was determined to be 61 of 688 patients (9%). Clinical findings included fever in 41% of affected patients, pleuritic chest pain in 20%, friction rub in 7%, pleural effusion in 93%, and pericardial effusion in 93%; importantly, thoracentesis was required in only 22% and pericardiocentesis in only 5% of these affected patients.

The latency period between operation and hospital admission with PPS was 21 days (range, 3-140 days). First-line medication for PPS included frequent use of glucocorticoids in 43% and relatively infrequent use of nonsteroidal anti-inflammatory drugs in 23% and colchicine in 15% of patients. Relapse of PPS occurred in 23 of 61 patients (38%), as defined by worsening pericardial or pleural effusion while receiving medication or after

withdrawal of medication. There were no differences in first-line medications between patients with and without relapse of PPS; this included use of glucocorticoids in 37% of those without relapse and in 52% of those with relapse ($P = .24$) and colchicine in 18% of those without relapse and in 9% of those with relapse ($P = .30$).

The results of the FinPPS study should be examined in context with those of the recently published Colchicine for Prevention of the Postpericardiotomy Syndrome and Postoperative Atrial Fibrillation (COPPS-2) study.² An important difference includes a much greater incidence (29% vs 9%) of PPS in the prospective COPPS-2 study control group. The FinPPS authors conjecture that the diagnosis of PPS is more sensitive in prospective studies such as COPPS-2 study, because the evaluations are performed by PPS-aware researchers. Lehto and colleagues go on to state that the higher incidence raises the possibility that many of the prospectively made diagnoses were clinically irrelevant. Concordant with the FinPPS argument is the finding that the incidence of thoracentesis or pericardiocentesis in the COPPS-2 study was 25% of affected patients; similar to that reported in the FinPPS study (23%). Although not discussed, geographic variances (eg, race, ethnicity, and diet) must also be considered as influencing the reported difference.

The main strength of the FinPPS study is the high rate of follow-up (98%) of patients centralized to the catchment area of the Turku University Hospital system. This allowed the identification of clinically significant events requiring treatment and the patient's subsequent outpatient follow-up (ie, the incidence). According to the currently standardized definition of PPS, the FinPPS authors identified known immune modulating factors to be associated with PPS (ie, risk factors). These included transfusion of red blood cells (predictive with a hazard ratio of 1.9; 95% confidence interval, 1.1-3.2; $P = .017$) and presence of diabetes (possibly related to immunomodulating medications such as metformin and protective with a hazard ratio of 0.32; 95% confidence interval, 0.15-0.71; $P = .005$).

The main limitation of the study relates to the identification of a relatively limited cohort of only 61 cases of PPS. It may be injudicious to base treatment recommendations on such a small number of patients. Lehto and colleagues¹ point this out, however, and go on to state that this study should be viewed as hypothesis generating. An additional

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shortcoming of the study was that it did not report on a significant aspect of PPS that warrants investigation, constrictive pericarditis. This is important because the group from the Cleveland Clinic recently published that constrictive pericarditis requiring pericardiectomy was responsible for 40% of the adverse events in patients with PPS after cardiac surgery.³ Further research in this area is warranted.

The FinPPS study does what the title states: it reports the incidence and risk factors of PPS requiring medical attention (ie, clinically relevant) in a geographically isolated patient population. The finding of an 8% incidence of delayed hospital discharge, readmission, or medical therapy as a result of symptoms for PPS is reassuringly low. This study supports the contention that first-line treatment with corticosteroids is not effective and may actually be detrimental, with a high rate of relapse; alternative therapy with colchicine has been suggested.⁴ The

final point to mention is that this study was not about PPS and atrial fibrillation. The answer to that question lies elsewhere.

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