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Revisiting Ethical Considerations in Recurrent Injection Drug Use–Related Infective Endocarditis

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The ongoing opioid addiction epidemic has precipitated an increasing burden of injection drug use-related infective endocarditis (IDU-IE), which now accounts for a third of all valve operations performed for IE in the United States and confers a high risk of recurrence requiring repeated valve replacement.[1] However, reoperation is often denied to patients on the basis of purported futility, given the increased risk of recurrent injection drug use.[2]

In the 2014 Ethics in Cardiothoracic Surgery paper in *Annals of Thoracic Surgery* entitled "When Is Enough Enough? The Dilemma of Valve Replacement in a Recidivist Intravenous Drug User," 2 of the current authors (S.C.H. and F.J.) outlined some of the salient ethical issues involved in the treatment of patients with recurrent IDU-IE.[3] However, in light of our evolving understanding of substance use disorder and addiction medicine, we need to revisit this question and revise our analysis and recommendations to reflect current evidence and understanding of this complex disease and population of vulnerable patients.

To begin, we regret the use of the terms *recidivist* and *drug user* in the title of the original manuscript, given their associated stigma, suggestion of criminality, and lack of patient centering. It is well established that addiction is a "treatable, chronic medical disease involving complex interactions among brain circuits, genetics, the environment, and an individual's life experiences."[4] Rather than a moral failing, addiction is a medical disease that requires those treating its associated conditions to anticipate the possibility of disease recurrence. Whereas some may argue that addiction begins as the result of poor individual behavioral choices, the same can be said of many chronic diseases, and this does not in any way obviate the medical team's professional obligation to treat patients with compassion and evidence-based interventions. Furthermore, the opioid addiction crisis has in many ways been fueled by the pharmaceutical industry's misleading claims about the safety of opioids as well as by physician overprescribing.

The 2014 paper was written at a time when it was not uncommon for patients with addiction, primarily opioid use disorder, to be declined for reoperation if recurrent IDU-IE developed with a prosthetic or previously repaired valve. Our goal was to challenge this as the default practice and to underscore the importance of treating these patients rationally and fairly. Just as it would be irrational to perform percutaneous coronary intervention in a patient with stable angina without providing any medical therapy to prevent progression of the underlying systemic disease process of atherosclerosis, it would be irrational to perform valve replacement for IDU-IE without addressing the underlying cause of the illness with evidence-based addiction treatment.[5,6] Similarly, it would be unjust not to perform repeated valve replacement in patients with IDU-IE simply because of recurrent opioid use when there is relatively little hesitation to perform repeated percutaneous coronary intervention in patients with active tobacco use disorder.

Application of the concept of psychosocial futility can be fraught with implicit bias and undue value judgments, so it should be invoked with caution if not avoided altogether. We suggest refocusing the question of futility on the patient's goals and the direct risks and benefits of the intervention in question. Specifically, if a patient presenting with recurrent prosthetic IDU-IE complicated by valvular dysfunction with heart failure, septic emboli, or persistent bacteremia expresses an immediate goal of short-term survival and a willingness to engage in addiction treatment, it is problematic to argue that repeated surgical intervention is futile unless the risk of death or disability from the intervention itself

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outweighs the risk of death or disability from treating complicated IDU-IE conservatively with medical management alone. In addition, the claim of futility is invalid if patients are not offered or do not receive evidence-based treatment of their addiction at the time of their initial procedure. Even if patients do receive these treatments, if we acknowledge that addiction is a chronic relapsing illness, then we must also recognize that substance use recurrence is an anticipated possibility rather than a rare event. It may take multiple treatment attempts, education, and harm reduction for individuals to stabilize or to recover from their illness.

Another important ethical concept to consider in these cases is the principle of autonomy. If patients express a sincere desire to recover from both IDU-IE and addiction, they should not be denied surgical intervention when it is otherwise strongly indicated (as in cases complicated by heart failure or embolic phenomena) unless there are medical or surgical contraindications such that risks of intervention outweigh benefits. Conversely, some individuals may not want to reduce or stop their drug use, accept medical treatment, or stay in the hospital for medical care. In these situations, respect for autonomy necessitates earnest discussions with patients about their individual goals, offering harm reduction education, and mitigating medical complications by providing oral antibiotics if they decline more intensive treatment. A complete absence of treatment would perpetuate harm, so an "all-or-nothing" stance should be avoided. Of course, respecting patient autonomy does not mean allowing patients to do whatever they want whenever they want. It may be necessary to set boundaries on behavior that is disruptive to patient care or threatening to the safety of nursing and medical staff or to prohibit visitation from individuals who actively interfere with treatment by bringing concealed substances to the hospital. However, these boundaries should be limited to measures that are necessary to protect patients and staff, and they should not be set with punitive intent.

In 2014, we also called for more explicit guidelines regarding the treatment of patients with IDU-IE. The updated 2020 American College of Cardiology/American Heart Association guidelines on the management of valvular disease newly addressed this issue, stating, "In patients with recurrent endocarditis and continued intravenous drug use, consultation with addiction medicine is recommended to discuss the long-term prognosis for the patient's refraining from actions that risk reinfection before repeat surgical intervention is considered."[7] This is a critical addition that was not present in previous guidelines. However, addiction medicine specialists can offer more than prognostication, as evidence-based interventions exist for the treatment of addiction that may reduce the likelihood of recurrent substance use by as much as 50%.[7] Indeed, the recommended approach to recurrent IDU-IE was further updated—and in our view strengthened—in the recent American Heart Association Scientific Statement, which suggests, "A detailed discussion with the patient and the endocarditis team is warranted about the surgical risks and prognosis among those deemed candidates for repeat valve surgery, just as it is for people with IE who do not inject drugs. Proceeding with another operation requires a plan for treatment of the addiction supported by addiction-trained clinicians and is a team decision."[8]

This represents a significant evolution in recognizing a formal approach to treating recurrent IDU-IE, and we believe this improvement deserves even greater emphasis. It suggests a stepwise framework of first strictly considering the medical and surgical risks and benefits in determining whether surgical intervention is likely to improve an individual patient's short-term outcome (as some reoperations may carry prohibitive risk) and next considering how best to manage the individual patient's addiction to optimize long-term outcomes. Rather than setting an absolute number of reoperations that should be considered acceptable, the balance of risks vs benefits in each individual case is the most important consideration in deciding how to proceed. In a 2016 study, only 24% of patients presenting with IDU-IE received inpatient addiction medicine consultation, and addiction was mentioned in only 56% of discharge summaries.[9] Therefore, we should emphasize that the medical team has an obligation to provide evidence-based addiction care and to ensure a robust transition to outpatient treatment and social support. Until patients have been initiated and retained in addiction treatment and their response is known, it may be difficult to predict the likelihood of recurrent substance use. Accordingly, patients presenting with recurrent IDU-IE should be evaluated by a multidisciplinary team (ideally composed of addiction medicine specialists, infectious disease specialists, cardiac surgeons, cardiologists, hospitalists, nurses, and social workers) to determine the course of action most likely to support an individual patient's goals and to provide the best clinical outcome in each unique case.[10]

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