Pelvic Venous Disorders: Dos and Don'ts

Considerations to help guide the management of PeVDs.

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Pelvic venous disorder (PeVD) has become the terminology to be used for women with chronic pelvic pain (CPP) of venous origin that was previously defined by several syndromic names, such as pelvic congestion syndrome, May-Thurner syndrome, and nutcracker syndrome. Due to challenges in the naming conventions for these disorders and the absence of randomized controlled data on the efficacy of widely used interventions, many challenges exist in the acceptance of PeVD by noninterventional physicians and insurance carriers.[1] In recent years, there has been increasing attention to this challenge, leading to the coordination of a Society of Interventional Radiology (SIR) Research Consensus Panel (RCP) to develop goals of improving quality of support to validate intervention for this patient population.[2] Following the creation of the RCP, the SVP (symptoms, varices, pathophysiology) classification was published to better delineate this multifactorial disease process and clarify which patients benefit from intervention.[1] Additionally, a research trial has been initiated to evaluate the clinical symptoms of venous-origin CPP and create a disease-specific quality-of-life tool that can help identify the proper patient population for intervention, as well as track outcomes of interventions in future research trials intended to evaluate the efficacy of ovarian vein embolization (OVE) and iliac vein stenting. When evaluating and treating patients with CPP of venous origin, it is important to keep certain considerations in mind, in addition to standard interventional procedural tactics.

DOS OF PeVDs

DO: Obtain a complete clinical history during work-up of CPP of venous origin prior to intervention.

Although nearly 40% of women experience CPP during their lifetime and 15% of women aged 18 to 50 experience CPP, pain will be of venous origin in approximately 16% to 31%. The typical symptoms of PeVD include noncyclical pelvic pain often described as a dull ache or fullness that is worse with prolonged standing, coitus, menstruation, and pregnancy. However, there is significant overlap between other causes of CPP, such as endometriosis, pelvic floor dysfunction, and central sensitization. The pain associated with PeVD has been attributed to the presence of dilated veins within the pelvis, leading to the release of neurotransmitters associated with nociception.[2] The combination of postcoital ache and tenderness over the ovarian point (the junction of the upper and middle third of a line drawn from the umbilicus to the anterior superior iliac spine) has been reported to be 94% sensitive and 77% specific for distinguishing a venous origin from other causes of pelvic pain.[1] When obtaining a clinical history, this specific pattern of pain should increase the suspicion for PeVD when pelvic varices are identified.

DO: Treat the pelvic reservoir completely to address CPP of venous origin.

The anatomic features attributable to PeVD include ovarian vein reflux, iliac vein compression, and renal vein compression. There should also be evidence of pelvic varices in the periuterine and periovarian space, although this may not be as obvious in patients with iliac vein obstruction. For women with reflux, ovarian vein incompetence is present in 40% of women on the left and 35% of women on the right.[3] Additionally, only 10% of internal iliac veins have valves that can be attributed to pelvic venous hypertension.[4] The evaluation of the source of the pelvic reservoir will help delineate if OVE, iliac vein stenting, or both is the best treatment strategy.

The goal of intervention for venous-origin CPP is to eliminate venous hypertension and varices in the periuterine and/or periovarian space. Although coil embolization of the ovarian vein alone has adequately reduced CPP in the short term in retrospective trials, the remaining pelvic reservoir can often be a nidus for recurrence. The drainage of the

pelvic venous reservoir is primarily through the bilateral ovarian veins and bilateral internal iliac veins. As a result, isolated treatment of one ovarian vein without addressing the pelvic varices can result in new reflux in the contralateral ovarian vein or reversal of flow through the internal iliac veins to the pelvic reservoir. Similar to lower extremity superficial venous disease, treatment of the variceal bed will provide good long-term results. However, future research trials will help validate this statement.

DON'TS OF PeVDs

DON'T: Assume all patients with pelvic varices have PeVD, especially if there is no pelvic pain.

Imaging findings of pelvic varices or dilated ovarian veins should not be the only identifying factor for PeVD. Pelvic varicosities are found in up to 50% of patients with pelvic pain and in up to 15% of women aged 20 to 50 years.[5] The presence of incompetent and dilated ovarian veins also cannot be assumed to represent PeVD, because 47% of asymptomatic women will have an ovarian vein diameter measuring 7 to 12 mm. Additionally, 63% of parous women and 10% of nulliparous women have been shown to have dilated and incompetent ovarian veins.[6]

A diagnosis of PeVD requires that CPP is excluded from other common causes of pelvic pain by a gynecologist and pelvic varices are demonstrated on imaging. Once these criteria are met, then the source of the pelvic reservoir should be identified as described above.

DON'T: Perform coil embolization of the internal iliac veins due to coil migration.

Coil migration is the biggest concern after venous embolization procedures for PeVD. When evaluating the literature on embolization for PeVD, coil migration occurred in 1.2% to 2.3% of procedures.[7,8] In a study by De Gregorio et al, all coil migrations occurred from the internal iliac veins.[8] Because veins are compliant and vessel size can change over time depending on hydration status or venous pressure, it is important to size or oversize coils appropriately to prevent immediate or delayed coil migration. It may also be prudent to avoid coil embolization in the internal iliac vein due to greater fluctuation in vessel size than the ovarian vein and increased incidence of reported coil migration in this location.

DON'T: Perform OVE in true renal vein compression (also known as nutcracker syndrome).

In patients with hematuria and/or flank pain caused by renal vein compression, the ovarian vein and pelvic reservoir may be acting as the collateral circulation, allowing for renal drainage. If this collateral channel is embolized to eliminate pelvic pain, it could increase pressure in the renal vein and kidney, worsening hematuria and flank pain. In this case, OVE would be contraindicated. However, if there is renal vein compression without symptoms of flank pain and/or hematuria, it is likely safe to pursue OVE to eliminate CPP. If there is suspicion for significant renal vein compression, one method to assess for effect and safety of OVE would be to check for pressure changes in the renal vein with and without a balloon in the ovarian vein. If renal vein pressure increases, OVE may be unsafe and should not be performed.

CONCLUSION

The overall understanding of PeVD is an active area of research that will evolve in the next few years. The recent SIR Foundation RCP has initiated significant advancements in the understanding of this disease. In the near future, the development of a disease-specific quality-of-life tool will allow for more accurate identification of patients with venous-origin CPP, and randomized controlled trials will assist in identifying the best tools for management of this challenging and unique patient population. ■

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