EUS-guided CPN and CGN

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More than 80% of patients in the advanced stages of pancreatic cancer experience pain. Therefore, paincontrol is a major challenge in the management of pancreatic cancer patients. The celiac plexus surrounds the celiac axis (CA) and the superior mesenteric artery, and it contains several ganglia and the interconnecting neural rami. It is responsible for transmitting pain sensations originating from the upper abdominal organs. Celiac plexus neurolysis (CPN) disrupts the transmission of pain signals from afferent nerves to the spinal cord via a neurolytic agent injected into the celiac plexus. It has been performed under radiographic, fluoroscopic, computed tomographic, or ultrasonographic guidance. More recently, the endoscopic ultrasound-guided procedure (EUS-CPN) was introduced in 1996. EUS-guided procedures have several advantages over other approaches. They are highly accurate, safe, and convenient if performed with real-time-imaging and with Doppler assessment of the interposing vessels. Two approaches are currently used when performing EUS-CPN. The classic approach, known as the central procedure, involves the injection of a neurolytic agent at the base of the CA. In the second approach, the bilateral procedure, the neurolytic agent is injected bilaterally into the CA. A recent meta-analysis and systematic review reported that around 70-80% of pancreatic cancer patients treated by EUS-CPN showed alleviation of pain. Further, previous studies have also suggested that the bilateral procedure is more effective than the central procedure. However, the central procedure is still more popular because it is potentially easier and safer than the bilateral procedure. Complications of EUS-CPN included transient abdominal pain, hypotension, diarrhea, and inebriation. In most of cases, these complications are not serious. However, some lethal cases following vascular and organ injury have been recently reported. These serious complications are probably due to injecting alcohol into an inappropriate site. On the other hand, several reports have recently revealed that the celiac ganglia themselves can be visualized precisely by EUS, and a new procedure has been introduced involving direct injection of a neurolytic agent into an individual celiac ganglion. This EUS-guided direct celiac ganglia neurolysis (EUS-CGN) approach may be safer and more effective than EUS-CPN, because it allows for the precise delivery of neurolytic agents into an individual celiac ganglion. Therefore, we conducted a multicenter, prospective randomized trial to compare the efficacies of EUS-CPN and EUS-CGN. As a result, we revealed that the positive response rate for pain relief was significantly higher in the EUS-CGN group than in the EUS-CPN group. The overall complication rates were similar in the two groups, but the total volume of injected ethanol was significantly lower in the EUS-CGN group than in the EUS-CPN group. This reduction in the injection volume may help avoid serious ischemic complications.