

## The future of ERCP



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In the current issue of *Endoscopy International Open*, Ahmed, et al. discuss trends for utilization of endoscopic retrograde cholangio-pancreatography in the United States over the years 2002 to 2013 [1]. Not surprising has been a shift from diagnostic to therapeutic ERCP and an accompanying fall in total procedures in the years between 2011 and 2013. What this manuscript fails to define, however, is that the vast majority of ERCPs in the United States have morphed from inpatient to outpatient procedures. As such, the 37,400 procedures recorded and reported in the current paper annually are dwarfed by the total ERCPs recorded annually in the United States (estimated > 450,000) [2].

What does the manuscript tell us relative to inpatient trends? For one, the number of inpatient ERCPs indeed seems to have declined. In a previous study using the Nationwide Inpatient Sample Database (NIS) delineating ERCPs in hospitalized patients, Jamal et al. reported 402,343 patients undergoing an ERCP from 1998 to 2002, approximately 100,000 patients yearly compared to 37,400 yearly in the current study [3]. Moreover, during the earlier reporting period, the age-adjusted ERCP rate increased 3-fold between 1988 and 1996 from 25.66 to 74.95 per 100,000

In the current publication, the rate of increase approximated 12%. Not surprisingly, there was a significant decrease in diagnostic procedures by 57% and a concomitant increase in therapeutic procedures by 37%. The reasons, of course, are obvious and include improved noninvasive imaging (computed tomography and magnetic resonance imaging/magnetic resonance cholangiopancreatography), and the predominant role endoscopic ultrasound (EUS) has come to play in defining pancreaticobiliary lesions because of its relative safety and its superiority over ERCP in tissue acquisition [4–8]. Moreover, the rate of growth of therapeutic procedures has been blunted not only by the ability of EUS to access and apply therapy to the pancreas, bile duct, and gallbladder [9–13] but also as a conse-

quence of studies showing no benefit for ERCP in select situations. As such, we no longer routinely undertake biliary drainage in jaundiced patients undergoing pancreatic surgery for malignancy [14]. Likewise, the EPISOD study has definitively shown us that there is no role for either ERCP or manometry in patients with type III Sphincter of Oddi dysfunction [15].

When Thierry Ponchon, the editor-in-chief of *Endoscopy International Open*, asked me to review the article by Ahmed discussed above, he also asked me to address the future of ERCP. However, the future is not monolithic and recent publications on ERCP developments in China demonstrate rapid growth in procedural volume, training, and outcomes that Western countries had historically reported [16]. On the other hand, as someone who has been doing ERCPs for the past 40 years, both in the West as well as the East, there are several simultaneous changes in practice patterns that I will reiterate:

1. ERCP has evolved primarily into an outpatient procedure with selective post-procedure admission, usually for less than 24 hours.
2. Additional training beyond that obtained in a conventional gastroenterology fellowship will be increasingly mandated and at a minimum, complex ERCPs referred to a Center of Excellence/tertiary care institution.
3. Endoscopists performing ERCP should also be skilled in EUS. I once referred to these as the salt and pepper shakers of pancreaticobiliary disease although knife and fork imagery is probably more apropos. As an individual who trained long before the introduction of EUS, I nevertheless believe that the 2 skillsets are complementary and that practicing ERCP alone limits both new diagnostic and therapeutic options and may result in overutilization of one of the higher-risk procedures that we do in therapeutic endoscopy [17–25].

What else might the future bring? Certainly continued attempts, both mechanical and pharmacologic, to decrease the

risk of procedural pancreatitis, much like we are currently doing with peri-procedural nonsteroidal anti-inflammatory drugs and small-diameter pancreatic duct stent placement [26–30]. The design and reprocessing of duodenoscopes that do not put our patients at risk of cross contamination and iatrogenic infections will also continue to take center stage for the foreseeable future [31–34].

In the initial edition of our ERCP text, the preface was entitled “ERCP Past, Present, and Future.” At that time the editors discussed routine cholangioscopy, the potential injection of litholytic agents into the pancreas for chronic calcific pancreatitis, and directed infusion of chemotherapeutic or immunomodulatory agents into the pancreaticobiliary tree as potential future scenarios [35]. However, we also said that “the check is in the mail,” and as such, it may or may not ever arrive. Its future will depend on parallel advancements in other imaging and laboratory advancements as well as breakthrough technology or techniques by other disciplines including interventional radiology and minimally invasive surgery.

In the third edition of ERCP currently in press, McHenry and Lehman in their chapter, “Approaching 50 Years: The History of ERCP,” speculate that hands-free manipulation of a duodenoscope comparable to robotic-assisted surgery may be a future scenario, and that “studies of pancreatic juice may provide predictors of recurrent pancreatitis, pancreatic cancer risk, and response to chemotherapy” [36]. Comparable to our previous preface, the check is still in the mail, and the current author waits impatiently for delivery.

## Competing interests

None

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