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Perforation Risk Following Colonoscopy: Small But Significant, and On the Rise

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Background: Colonoscopy (C) is a safe procedure and its complications are rare. However, colonic perforation is a dreaded complication of C, typically requiring surgery. Because of the increasing implementation of colorectal cancer screening and surveillance, C-related complications may become a significant public health issue. We studied the perforation risk of a large US population sample undergoing C. Methods: We conducted a retrospective, population-based, time-matched, cohort study in the California MediCal program. MediCal, the Medicaid program for the State of California, is the largest Medicaid program in the US, with over 7 million participants per year. We assembled all patients age 18 and older who were enrolled in the MediCal program between 1/1995 and 6/2005 and identified all C using CPT codes. All patients with C were age-, gender- and time-matched to 10 controls each, who did not have any C. Patients with a history of intestinal perforation before their first C or matched index date were excluded. All patients were required to have a minimum of 30 days follow-up after C. We studied the incidence of colonic perforation in the 1 week period following C (exposed cohort) or matched index date (controls). We calculated the incidence of perforations per calendar year for all years where complete data was available. Results: A total of 275,820 patients with 384,957 C were matched to 692,216 controls (mean age 63.4 years, 36.6% men in both groups). We identified 183 patients (247 perforations) among patients with C (66 per 100,000 patients, 64 per 100,000 C) compared to 20 perforations in controls (0.73 per 100,000) (Relative Risk 91.6, 95% CI 57.7-145.3, $p = 0.0000$). The total number of C increased from 20295 in 1995 to 48078 in 2004. While the overall number of perforations increased commensurately, the rate of perforations remained relatively stable. Patients with a negative C had a similar rate of perforations (66 per 100,000) compared to those who had a polypectomy or biopsy (63 per 100,000); the highest rate was seen in patients who had other procedures such as injection or dilatation (370 per 100,000). Multiple logistic regression showed no difference in perforation rates between men and women, but increasing age was associated with a slight but statistically significant increase in risk (Odds Ratio per year 1.011, 95% CI 1.002-1.021, $p < 0.02$). Conclusions: The risk of perforation is very small with diagnostic C or with C plus biopsy/polypectomy. Unfortunately, despite larger experience with C, this risk remains unchanged, and with increasing implementation of C, it is becoming a significant public health issue.

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Work-Related Musculoskeletal Disorders in Endoscopists

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Background and Purpose of Study: Work-related musculoskeletal disorders (MSD) have drawn significant interest. Although many GI endoscopists also suffer from musculoskeletal disorders, they tend to neglect or try to alleviate the symptoms without resorting to professional treatment. In addition, few systematic studies have been performed to evaluate the status of these problems among endoscopists. The goal of this study is to assess the prevalence and risk factor of musculoskeletal disorders among endoscopists in Korea. Methods: A survey was distributed to endoscopists practicing in general hospitals from June to September in 2006. The questions in the survey included age, experience level on endoscopy, weekly working hours, the number of endoscopy procedures, and postures/habits during procedure. Participants were asked to identify the type of musculoskeletal pain and report its magnitude on a 0-10 visual analogue scale (VAS). They were also asked to describe its effectiveness on their procedure, other endoscopy related symptoms and the method of management. Statistical significance was investigated using the chi-square test. Results: Total 55 endoscopists participated the survey. Their average procedure time per week was 19.5 hours and the average number of endoscopy procedures performed per month was 270.2. 49 (89.1%) participants reported at least one musculoskeletal symptom and 37 (67.3%) participants complained the pain at rest. 26 (47.3%) participants had severe pain (VAS > 5.5), and they showed a tendency to have a specific posture or habit during endoscopy procedure. Moreover, they tended to have a standing position on the upper endoscopy and multiple symptomatic regions. The experience levels of participants did not show any statistically meaningful correlation to the prevalence of musculoskeletal problem, the number of symptomatic regions, and the VAS values of the main symptomatic region. However, the experience level showed significant correlation to the symptomatic regions. For instance, the finger pain was prevalent in a beginner, while the shoulder pain was common in an expert. 16.3% of symptomatic endoscopists have modified their practice or shortened their endoscopy load and 63.3% have been influenced by musculoskeletal disorders on their procedure. Almost all the symptomatic participants (81.6%) solved the problems by exercising, stretching, or resting. Conclusions: In this study, we have demonstrated that endoscopists undergo many musculoskeletal disorders, but the effective diagnosis and management have not been achieved to date. Further systematic survey is required to explore preventive management or education program.

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Perceptions of Surgical Residents Regarding Endoscopic Training and Competency

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Purpose: Endoscopic training is mandatory during surgical residency training, and guidelines have been published suggesting a minimum number of procedures and successful completion rates needed to achieve competency. The aim of this study was to assess the perceptions of current surgical residents regarding their training and competency performing endoscopic procedures following completion of a two month endoscopy rotation under the supervision of experienced attending gastroenterologists. Methods: All residents completing the rotation from July 2004 to July 2006 were surveyed. Total endoscopic (upper endoscopy (EGD) and colonoscopy) exposure and number of independently completed procedures were recorded. Perceptions regarding comfort level and adequacy of training both in diagnostic and therapeutic endoscopic interventions were assessed. Data were compared using Welch's t-test assuming unequal variances and chi-squared analysis. P-values <0.05 were considered significant. Results: Sixteen residents completed the endoscopy rotation during the study period. The mean number of endoscopic procedures performed per the endoscopic training rotation was $135.75 + 73.8$. (mean 86 colonoscopies and 54 EGDs). Successful completion rates for colonoscopy (43%) were significantly lower than upper endoscopy (83%), ($p \leqq 0.001$). Residents felt more comfortable with their ability to complete upper endoscopy ($p = 0.001$) and with the adequacy of their training with EGDs ($p = 0.020$) as compared to colonoscopy. The mean numbers of colonoscopic polypectomies and endoscopic bleeding therapy performed by residents were $12.0 + 10.4$ and $0.3 + 0.2$, respectively. Residents rated their comfort level with performing colonic polypectomy much higher than performing upper endoscopic bleeding therapy ($p \leqq 0.001$). Despite performing fewer procedures than the published minimum recommendations, 45% and 60% of residents reported that they planned to perform colonoscopy and upper endoscopy, respectively, after graduation from residency. Conclusion: Surgical residents in our training program felt more comfortable with their skills and training in EGD than colonoscopy; however, none achieved the published minimum volume or successful completion rates for either procedure. As most cited their intention to perform endoscopic therapy after residency, a two month training experience for surgical residents in endoscopic therapy may not be sufficient to safely and reliably perform these procedures.