

with CDH who underwent surgical repair were identified by *International Classification of Diseases, Ninth Revision* procedure code and inclusion criteria including an age at admission of less than 1 year. Variables of sex, race, age, geographic region, coexisting diagnoses and procedures, hospital type, hospital charges adjusted to 2006 dollars, length of stay, and inpatient mortality were collected. A total of 89% of patients were either treated initially or rapidly transferred to urban teaching hospitals for definitive treatment of CDH. The inpatient mortality rate was 10.4% with a median length of stay of 20 days (interquartile range of 9–40 days). The median inflation-adjusted total hospital charge was \$116,210. Respiratory distress was the most common coexisting condition (68.8%) followed by esophageal reflux (27.8%). The most common concomitant procedures performed were extracorporeal membrane oxygenation (17.8%) and fundoplication (17.6%). This study, which represents the largest characterization of US infants who have undergone CDH repair using data from a nationally representative nonvoluntary database, demonstrates that surgical repair is associated with significant mortality and morbidity.—*Federico G. Seifarth*

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Alimentary tract

Repair of long-gap esophageal atresia: gastric conduits may improve outcome—a 20-year single center experience

Hunter CJ, Petrosvan M, Connelly ME. Pediatr Surg Int 2009;25:1087-91

Treatment of long-gap esophageal atresia (LEA) is a major challenge. Options for reconstruction include native esophagus or replacement with stomach, colon, or small intestine. However, debate continues regarding the optimal conduit for esophageal replacement. Medical records of patients with a diagnosis of esophageal atresia during a 20-year period were reviewed. Twenty-eight cases of LEA were identified. Ten patients underwent primary anastomosis either after serial pouch dilations (9/10) and/or after a lengthening procedure (2/10). Nine received colonic interpositions, and the remainder were reconstructed with a gastric tube (n = 3) or gastric interposition (n = 2). One patient died before repair, and 2 await definitive treatment. Repeat esophageal reconstruction was required in 4 patients because of conduit ischemia. Two ischemic events occurred in the colonic interposition group and 2 in the native esophageal repairs. All patients, except one who relocated, received long-term follow-up (mean, 4.2 years; range, 0.5–11.5 years). Surgeon's expertise and patient's anatomy should be considered when selecting an appropriate operation for LEA. Although native esophagus is generally preferred, it is associated with a high rate of stricture. The current study is limited by numbers. The authors found that patients with gastric conduits had lower complication rates and no conduit ischemia. They suggest that gastric transposition may be favored as an initial reconstructive option.—*Federico G. Seifarth*

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Impact of rikkunshito, an herbal medicine, on delayed gastric emptying in profoundly handicapped patients

Kawahara H, Mitani Y, Nomura M. Pediatr Surg Int 2009 (November);25 (11):987-90

Rikkunshito is used to treat functional dyspepsia in adults. This study from Osaka, Japan, investigated the effects of rikkunshito on delayed gastric

emptying in handicapped patients. A retrospective review was performed in 9 profoundly handicapped patients (aged 1–19 years). All were diagnosed with delayed gastric emptying based on their half gastric emptying time ($T_{1/2}$) over 90 minutes. Gastric emptying was evaluated after the ingestion of liquid meals using the (13)C-acetate breath test and the BreathID system. Participants were given rikkunshito (0.3 g/[kg d]) with the aim of accelerating gastric emptying. Parameters related to gastric emptying before and during rikkunshito administration were compared using the Wilcoxon signed-rank test. Data were expressed as the median (range). Emesis and hematemesis were relieved with rikkunshito administration in 4 symptomatic patients. The $T_{1/2}$ and T_{lag} decreased significantly during rikkunshito administration from 115 (94–167) minutes to 107 (64–66) minutes ($P = .02$) and from 60 (42–90) minutes to 47 (29–59) minutes ($P = .03$), respectively. The gastric emptying coefficient did not show a significant change (3.1 [2.8–3.8] vs 3.2 [2.6–4.0], $P = .15$) with rikkunshito treatment. The authors conclude that the administration of rikkunshito results in symptomatic relief and improved gastric emptying in profoundly handicapped patients with delayed gastric emptying.—*Federico G. Seifarth*

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Improved outcomes in paediatric intestinal failure with aggressive prevention of liver disease

Sigalet D, Boctor D, Robertson M, et al. Eur J Pediatr Surg 2009 (December);19/6:348-52

A protocol-driven care algorithm for the care of intestinal failure (IF) centered on therapies to prevent parenteral nutrition associated cholestasis (PNAC) was instituted in 2006. The authors report on their results from 2006 to 2009 and compare them to the outcomes of the previous cohort of patients (1998–2006).

Data were obtained prospectively. *Intestinal failure* was defined as a residual bowel length of less than 40 cm or a requirement of parental nutrition (PN) for longer than 60 days. A protocol-driven strategy to prevent PN-associated cholestasis was instituted with aggressive introduction of enteral feeds, use of prophylactic antibiotics to prevent bacterial overgrowth, lipid reduction and use of fish oil-derived lipid preparation for cholestasis and serial transverse enteroplasty (STEP) if bowel dilation occurred.

In the era from 1998 to 2006, 33 patients were identified, with a 72% survival. The direct bilirubin averaged $112 \pm 34 \mu\text{mol/L}$ after 3 months of PN. Eight of thirty-three (27%) of patients received prophylactic antibiotics, and none received fish oil-based lipids. The most common causes were gastroschisis (30%) and atresia (21%). Thirty-one of the 33 patients were infants. Average time to intestinal rehabilitation was 4.3 ± 3 months. All deaths were related to sepsis or PN/liver failure.

In the era from 2006 to 2009, 22 patients have been followed, with 100% survival. Average bilirubin after 3 months $8 \pm 2.2 \mu\text{mol/L}$. Twenty of twenty-two (90%) received prophylactic antibiotics, and 6 (27%) of 22 received fish oil-based lipid PN. The most common causes of IF were gastroschisis and atresia. Eighteen of twenty-two are weaned from PN, and the average intestinal rehabilitation time was 2.7 ± 1.3 months. Four patients underwent STEP procedures. The institution of an aggressive protocol of advancing enteral feeds, oral antibiotic prophylaxis, fish oil-based lipid use, and the STEP procedure has resulted in an increase of survival and a remarkable improvement in liver function in IF patients.—*Thomas A. Angerpointner*

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