

Successful Gastrostomy Tube Weaning Program Using an Intensive Multidisciplinary Team Approach

Brown J. *et al.*

Journal of Pediatric Gastroenterology and Nutrition (Feb 2014)

The current study evaluated the effectiveness of a multidisciplinary intensive inpatient model for gastrostomy tube (GT) weaning.

A retrospective chart review was completed on 30 GT-dependent children, aged 3.9 (± 1.4) years, admitted to the inpatient feeding program (length of stay 19 days) from May 2009 to December 2011. Administered GT calories were decreased on admission by an average of 73% from home regimen. Patients were offered three meals and two to three snacks per day, including three intensive feeding therapy sessions (Monday to Friday) along with psychosocial support, nutrition guidance, and behavioral therapy. Daily calorie counts and weights were recorded. Patients returned for a postdischarge feeding evaluation at an average of 4 months and a clinic visit at 1 year. Data were analyzed using paired samples t tests.

Prior to admission, patients received 69% (± 25) of goal calories by GT and 22% (± 19) of goal calories orally. During admission, the average caloric intake by mouth as a percentage of goal increased over the course of weeks 1, 2, and 3 (68%, 77%, and 82%, respectively), with a statistically significant increase between weeks 1 and 2 ($P = .001$) and 1 and 3 ($P = .011$). At discharge, 90% had discontinued GT feedings. Average percent weight change during admission was 0.2% (± 4). At 1 year follow-up, 83% remained successfully off GT feedings.

Children who are GT dependent can be weaned off GT feedings during a 3-week admission using a multidisciplinary feeding model. The therapeutic gains were maintained at 1 year postdischarge.

Lactoferrin and necrotizing enterocolitis

Sherman M. *et al.*

Current Opinion in Pediatrics (Feb 2014)

There is an intense interest among neonatal caregivers as to whether lactoferrin given enterally may reduce the incidence of necrotizing enterocolitis in preterm infants. This review presents scientific and clinical evidence that lactoferrin alleviates or prevents this life-threatening disease.

Preclinical studies in neonatal rats showed that lactoferrin given orally before enteral infection with pathogenic *Escherichia coli* reduced bacteremia and mortality. A multicentered clinical trial found that very low birth weight preterm infants given bovine lactoferrin had a significant reduction in late-onset sepsis; there was also a trend toward a diminished incidence of necrotizing enterocolitis. Although multicentered trials of lactoferrin use in preterm infants are near completion, regulatory burdens required to bring lactoferrin to the bedside may limit its availability.

Extremely preterm infants should receive colostrum, a natural lactoferrin concentrate immediately after birth and, ideally, continue on breast milk throughout the hospital stay. This practice appears well tolerated, but additional experience will tell us whether this practice reduces the prevalence of necrotizing enterocolitis.

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Genetic variants at HbF-modifiers loci moderate anemia and leukocytosis in sickle cell disease in Tanzania

Mtatiro SN. *et al.*

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HbF levels are strongly influenced by genetic variants at three genetic loci Xmn1-HBG2, HMIP-2, and BCL11A.

Their effects are related to promotor G γ and/or increase in hemoglobin levels, white blood cell count and platelet count in some mutations.

Congenital hypertension and preeclampsia in living kidney donors

Garg AX *et al.*

NEJM 2015;372:124-133

A retrospective cohort study of living donors involving 85 women who had 141 pregnancies matched with 510 healthy donors from a general population who had 788 pregnancies after a cohort entry.

Donors and nondonors were matched with respect to age, year of cohort entry, residency, income, and number of pregnancies before the cohort entry.

Gestational hypertension or preeclampsia was more common among living kidney donors (11% versus 5%, $P=0.01$), but preterm birth or low birth weight, stillbirth, and maternal death did not show any difference. Most women had uncomplicated pregnancies after kidney donation.

Early Immunopathological Diagnosis of Ichthyosis with Confetti in Two Sporadic Cases with New Mutations in Keratin 10

Diociaiuti A *et al.*

Acta Dermato-Venereologica (Mar 2014)

Ichthyosis with confetti (IC) is a severe non-syndromic ichthyosis due to heterozygous mutations in the KRT10 (keratin 10) gene. The disease manifests at birth with erythroderma and scaling, and is characterized by the gradual development of numerous confetti-like spots of the normal skin. Diagnosis of IC is frequently delayed until adolescence or even adulthood. We report two young children who were first diagnosed as having congenital ichthyosiform erythroderma. However, the development of thick, confluent hyperkeratotic plaques together with the histopathological finding of keratinocyte vacuolization in the suprabasal epidermis evoked IC. The immunofluorescence analysis showed a highly reduced KRT10 expression within the cytoplasm of suprabasal keratinocytes and its characteristic mislocalization to the nuclei. The diagnosis was confirmed by the identification of two previously unreported mutations in intron 6 and exon 7 of KRT10. A careful clinical examination then showed the presence of the first spots of the normal skin in both patients at the age of 2.5 and 5 years, respectively. These cases point to the usefulness of the immunofluorescence analysis of KRT10 expression for an early diagnosis of IC.

Carotid Canal or Temporal Bone Fractures an Indication for CT Angiography in Children

Presented at American Association of Neurological Surgeons (AANS), Source: DocGuide.com

SAN FRANCISCO—April 8, 2014—Risk factors most associated with cerebrovascular injury in pediatric patients—and most appropriate for computed tomography angiography (CTA) —include a fracture through the carotid canal and a temporal bone fracture, according to a retrospective research presented on April 7 at the 82nd Annual Meeting of the AANS. Children with cranial trauma are commonly evaluated for cerebrovascular injury with CTA, but the procedure has the downside of exposing patients to high doses of radiation. Lead investigator Vijay Mysore Ravindra, MD, University of Utah, Salt Lake City, Utah, and colleagues evaluated 235 pediatric patients (mean age: 8.3 years) who underwent CTA during evaluation for traumatic cranial injury between 2003 and 2013 in an effort to better identify which patients are most at risk of injury. Upon head CT, there were 24 (10%) patients who had focal neurological deficits and 154 (66%) who had intracranial hemorrhage.

Thirty-three (14%) patients showed invasive coronary angiography (ICA) abnormalities; mortality was threefold higher among these patients. Sixteen (6.8%) of the patients died, and a Rotterdam score of 4–6 was significantly associated with ICA injury.

A multivariate regression analysis demonstrated that the strongest risk factors for carotid injury were fracture through the carotid canal (odds ratio [OR] 5.6), temporal bone fracture (OR 10.1), Glasgow Coma Score of less than 9 (OR 3.1), focal neurological deficit (OR 5.0), and stroke on initial CT (OR 7.0).

The model's area under the curve was 0.84, demonstrating a high degree of accuracy.

Biologically inactive leptin and early onset of extreme obesity

Wabitsch M. *et al.*

NEJM 2015;372:48-54

Extreme obesity due to leptin deficiency was previously reported in two brothers of the Pakistani origin. Wabitsch *et al.* described a Turkish boy with early-onset extreme obesity whose parents were first-degree relatives. Although the leptin level was high in this boy, this was an appropriate level of leptin that neither binds to nor activates the leptin receptor. Therefore, the mutant leptin molecule failed to reduce food intake and obesity. The treatment of the patient with recombinant human leptin rapidly normalized appetite and resulted in weight loss.

Switching to recombinant FIX Fc fusion protein profilaxis results in fewer transfusions, decreased FIX consumption, and lower bleeding rates

Powell J, *et al.*

British Journal of Hematology 2015;188:113-123

A total of 23 patients with Christmas disease (hereditary FIX deficiency), previously treated with FIX, were evaluated and compared with patients previously treated with recombinant FIX Fc fusion protein. Most patients (69.2%) received FIX infusions (50 iu/kg weekly or 100 iu/kg every 10 days) twice-weekly prior to this new approach, while subjects received recombinant factor IX (FIX Fc) once every 2 weeks with 30%–50% reduction in infusions in weekly consumption according to this new approach. The results indicate that patients receiving FIX Fc experience lower annualized bleeding rates, maintaining a steady-state FIX level through levels more than once more than 90% of the subjects.

Valganciclovir for Symptomatic Congenital Cytomegalovirus Disease

Kimberlin WD et. al.

N Engl J Med 2015; 372:933-943

The treatment of symptomatic congenital cytomegalovirus (CMV) disease with intravenous ganciclovir for 6 weeks has been shown to improve audiologic outcomes at 6 months, but the benefits wane over time.

A randomized, placebo-controlled trial of valganciclovir therapy in neonates with symptomatic congenital CMV disease, comparing 6 months of therapy with 6 weeks of therapy was conducted. The primary end point was the change in hearing in the better ear ("best-ear" hearing) from baseline to 6 months. Secondary end points included the change in hearing from baseline to follow-up at 12 and 24 months and neurodevelopmental outcomes, with each end point adjusted for central nervous system involvement at baseline.

A total of 96 neonates underwent randomization, of whom 86 had follow-up data at 6 months that could be evaluated. Best-ear hearing at 6 months was similar in the 6-month group and the 6-week group (2 and 3 participants, respectively, had improvement; 36 and 37 had no change; and 5 and 3 had worsening; $P=0.41$). Total-ear hearing (hearing in one or both ears that could be evaluated) was more likely to be improved or to remain normal at 12 months in the 6-month group than in the 6-week group (73% vs. 57%, $P=0.01$). The benefit in total-ear hearing was maintained at 24 months (77% vs. 64%, $P=0.04$). At 24 months, the 6-month group, as compared with the 6-week group, had better neurodevelopmental scores on the Bayley Scales of Infant and Toddler Development, third edition, on the language-composite component ($P=0.004$) and on the receptive-communication scale ($P=0.003$). Grade 3 or 4 neutropenia occurred in 19% of the participants during the first 6 weeks and 21% of the participants in the 6-month group and in 27% of those in the 6-week group ($P=0.64$).

Treating symptomatic congenital CMV disease with valganciclovir for 6 months, as compared with 6 weeks, did not improve hearing in the short term but appeared to improve hearing and developmental outcomes modestly in the longer term.

HIV-Positive-to-HIV-Positive Kidney Transplantation — Results at 3 to 5 Years

Elmi Muller MB et al.

N Engl J Med 2015; 372:613-620

The outcome of kidney transplantation in human immunodeficiency virus (HIV)-positive patients who receive organs from HIV-negative donors has been reported to be similar to the outcome in HIV-negative recipients. The outcomes at 3 to 5 years in HIV-positive patients who received kidneys from HIV-positive deceased donors were reported.

A prospective, nonrandomized study of kidney transplantation in HIV-infected patients who had a CD4 T-cell count of 200 per cubic millimeter or higher and an undetectable plasma HIV RNA level were conducted. All the patients were receiving antiretroviral therapy (ART). The patients received kidneys from deceased donors who tested positive for HIV with the use of fourth-generation enzyme-linked immunosorbent assay at the time of referral. All the donors either had received no ART previously or had received only first-line ART.

From September 2008 through February 2014, a total of 27 HIV-positive patients underwent kidney transplantation. Survivors were followed for a median of 2.4 years. The rate of survival among the patients was 84% at 1 year, 84% at 3 years, and 74% at 5 years. The corresponding rates of graft survival were 93%, 84%, and 84%. (If a patient died with a functioning graft, the calculation was performed as if the graft had survived.) Rejection rates were 8% at 1 year and 22% at 3 years. HIV infection remained well controlled, with undetectable virus in blood after the transplantation.