



Summer Newsletter

The International Study Group of Pediatric Pancreatitis: In search for a cuRE (INSPPIRE)

Issue 7 July 2023

Our Team: 25 Centers Worldwide

You are helping us to learn more about pancreatitis!

Risk Factors and Disease Burden in Pediatric Pancreatitis

689 subjects (365 with ARP, 324 with CP)

Analysis of INSPPIRE-2 Cohort: Risk Factors and Disease Burden in Children With Acute Recurrent or Chronic Pancreatitis
Uc et.al. (J Pediatr Gastroenterol Nutr. 2022 Nov 1;75(5):643-649. doi: 10.1097/MPG.0000000000003590. Epub 2022 Aug 17

Risk Factors associated with CP:

#1 Genetics

Genetic mutations are the most common risk factor. CFTR gene mutations are more common in ARP (37.5%). PRSS1 gene mutations are more common in CP (36.2%)

#2 Obstructive Factors

Obstructive factors are more common in CP (36.2%). Pancreas divisum is the most common obstructive factor for getting CP (21.6%).

#3 Age at 1st AP attack

Children diagnosed with CP were one year younger when they had their first acute pancreatitis attack (8.4 years) than children diagnosed with ARP (9.3 years).

Quality of Life Issues:

Pain is common

Most children (89.6%) had pain in the last year. 44% of children with CP had pain at least once a month and had more constant pain. They took pain medication more often than those with ARP (45%).

Health Care use

Children with CP more often had ERCP procedures (73%) than those with ARP (12%). 37% of children with CP had pancreatic surgery while 11% of those with ARP had pancreatic surgery. Children with CP have more ER visits and hospitalizations than children with ARP.

Missed School Days

Children with CP miss more school than children with ARP.

Outcomes of chronic pancreatitis:

Exocrine pancreatic insufficiency (EPI)

Damaged pancreas no longer produces enough digestive enzymes to properly digest food

Digestive pancreatic enzymes	Food
Lipase	Fat
Protease	Protein
Amylase	Carbohydrates

Reduced absorption of nutrients from food

33% of children with CP have EPI while 10% of children with ARP have EPI.

ARP **CP**

Islet Dysfunction/Diabetes

Type 3c pancreatogenic diabetes was present in 9% of children with CP and 6% of children with ARP.

MEET OUR Newest SITES
The Pancreas Programs at our International sites provide specialized care for children with pancreas disorders. We offer organized, coordinated and efficient means to find out if kids have pancreatitis and to treat them. We closely work with pain, endocrinology and surgery teams to provide the best of patient care.

Boston Children's Hospital, Boston MA

Site PI: Amit Grover, MD

New York Massachusetts
Boston Children's Hospital
Connecticut
Pennsylvania New Jersey
Maryland
JOHNS HOPKINS CHILDREN'S CENTER

Johns Hopkins University, Baltimore MD

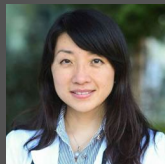
Site PI: Kenneth Ng, DO
Coordinator(s): Ashley Thomas
E-mail: ashley_thomas@jhmi.edu

Yuhua Zheng BM, MS

Associate Professor

Children's Hospital Los Angeles

University of Southern California



Pancreatic enzyme replacement therapy (PERT)

Pancreatic enzyme replacement therapy (PERT) is used for persons with exocrine pancreatic insufficiency (EPI). PERT helps people with issues related to loss of exocrine pancreas function. These include preventing food digestion and absorption issues, preventing loss of fat in stool, absorbing fat-soluble vitamins and essential fatty acids, preventing malnutrition and gaining weight. PERT includes the following enzymes: amylase, lipase, and proteases. PERT must be taken with meals and snacks to digest carbs, fats, and proteins.

PERT is manufactured from pig pancreas that has a high level of these enzymes. Since 2010, several PERT products have been approved by the Food and Drug Administration (FDA) to treat EPI. There are two kinds of PERT, delayed- or immediately released.

Creon, PANCREAZE, ZENPEP, and PERTZYME are available in delayed-release forms including enteric-coated spheres, microspheres, micro tablets or beads. Delayed-release capsules are recommended for children with EPI. Enteric-coating keeps enzymes from being broken down by acid in the stomach. The enteric coating breaks down in the intestine and releases the enzymes for more optimal digestion. Viokace is an uncoated enzyme, which means it is released immediately. It is prone to break down by stomach acid and not ideal for enzyme replacement therapy. An acid blocking medication is typically recommended with Viokace. RELIZORB is used for children fed through a tube. It contains only lipase in a digestive cartridge that connects directly to the feeding tube. The lipase is attached to small bead carriers and interacts with fats in the formula as it passes through the tube. Because it contains only lipase, it would only break down fat in the formula.

The recommended dose of PERT is based on weight and child's age. PERT dosing can also be calculated based on the dietary fat intake. For children who cannot swallow delayed-release PERT capsules, the capsules may be opened and the microspheres sprinkled on low pH food (applesauce, etc.). The microspheres should not be mixed with foods that have a pH greater than 7.3, like milk. These foods will make the enteric coating dissolve and be broken down by the stomach acid and the enzyme will lose activity. Children should avoid crushing, chewing or holding the pancreatic lipase in the mouth as this may cause irritation, ulcers, and dental cavities. The rate and extent that PERT dissolves for each brand is unique. One brand cannot be substituted with another. If a different brand of PERT is started, the new PERT dose should be adjusted to make it the most effective.

PERT products are generally well tolerated. Headache, dizziness, abdominal pain, gassiness, and diarrhea may be observed.

Spinach and Cheese Frittata

The frittata, an open-faced omelet, is easy to make, infinitely adaptable, full of protein, and great for breakfast, brunch, lunch, and even a light dinner.

Yield: 6 servings

Ingredients

- 1 teaspoon vegetable or olive oil
- 1 large Spanish onion, chopped
- 2 garlic cloves, minced
- 6 large eggs, lightly beaten
- 10 large egg whites, lightly beaten
- 2 cups tightly packed flat-leaf spinach, chopped, or baby spinach, well washed
- ½ cup crumbled nonfat feta cheese or goat cheese
- 1 teaspoon kosher salt
- ½ teaspoon black pepper

Instructions

Place a nonstick skillet over medium heat and when it is hot, add the oil. Add the onion and garlic, stirring occasionally, until they are fragrant, soft and slightly caramelized, about 8 to 12 minutes (depending on the size of the pan).

Set aside to cool. Add the remaining ingredients and mix well. The mixture will look very spinachy and not very eggy. (The frittata can be completed up to this point the night before. Simply cover and refrigerate.) Preheat the oven to 350 degrees F. Place a lightly buttered, nonstick, 9-inch square pan in the oven and when both are hot, add the egg mixture and let cook until the eggs are set, 15 to 20 minutes. Serve hot, at room temperature, or cold with a little bit of fruit salad or mesclun greens on the side.

Nutritional information per serving: Calories 131, Total Fat 6g, Saturated Fat 2g, Trans Fat 0g, Cholesterol 211mg, Sodium 352mg, Total Carbohydrate 4g, Dietary Fiber 1g, Protein 13g



From NPF: Healthy Family Recipes for Pancreas Disease

Your site name:

PI:

Research coordinator:

Tel:



Watch your inbox!

Seattle Children's and the University of Iowa invite you to complete a survey! We want to help youth reduce the impact of pain in their lives by learning more about pain, health, and medication use in youth with pancreatitis and their parents/families. **If you receive an email with the subject "Pediatric Pancreatitis Survey Study (INSPPIRE2)" or similar, please click the link to learn more about the study and participate.**

Parents who complete the survey earn a \$15 Amazon.com gift card, and youth who complete the survey earn a \$10 Amazon.com gift card.