Thank You . . .

We are pleased to provide you with this new update of pancreatic cancer research. We have moved forward in a big way to better understand factors that can affect risk, with recent discoveries about body weight, the ABO blood group, and other genes. Mayo Clinic and the Pancreatic Cancer Genetic Epidemiology Consortium (PACGENE) research team are at the forefront. These exciting findings are the result of our continuing, focused effort. Most importantly, they could not have been done without your commitment to our research. Thank you for taking part and working with us!

ABO Blood Type and Pancreatic Cancer

The ABO blood group system, which is genetically determined, and its medical value have been known for decades. The four main blood types are: A, B, AB, and O. Several studies in the mid-20th century reported a relationship between ABO blood type and some cancers, including pancreatic cancer. In 2009, two studies have refined our knowledge, and we hope, using newer technologies, to apply this new knowledge to improve risk assessment.

Many universities and hospitals around the world, including Mayo Clinic, have worked together on a study of DNA from blood samples of pancreatic cancer patients that were compared with the DNA from people without pancreatic cancer. Using a method known as a genome-wide association study (GWAS), in which hundreds of thousands of genetic variants were analyzed in over 8,800 people, the variants that are in the ABO gene were found to significantly increase risk by 20 percent.

This finding led to a look at ABO blood types in a large number of United States health professionals in a study run since 1976 by Harvard University. Among this group, 316 had developed pancreatic cancer over the years (out of 107,503 who have been in this study). They found increased risk by 30 percent to 70 percent in individuals with blood types A, B, or AB, compared to those with blood type O. They estimated that 17 percent of pancreatic cancers are attributed to non-O blood groups.

These studies will help us greatly as we develop a useful way to compute risk for pancreatic cancer.

References:
Higher Weight and BMI Can Influence Risk and Survival

Being overweight or obese is known to increase the risk of getting different cancers, including pancreatic cancer. A team in Texas has shown that obesity, as measured by body mass index (BMI), increases the risk of developing pancreatic cancer, after taking diabetes and cigarette smoking into account. This study also pointed to greater risk from a higher BMI in early adulthood.

The study compared 841 patients with pancreatic cancer to 754 patients without cancer. Compared to patients with normal BMI, those who reported being overweight (BMI 25-29.9) at ages 14 to 39 years had 0.7 times higher risk, while those who reported being obese at ages 20 to 49 had 2.6 times higher risk. The team also found that patients who reported a higher BMI in early adulthood developed pancreatic cancer younger, by 2 to 6 years, than patients with normal weight.

References:

To calculate your own BMI, please visit this link: http://www.mayoclinic.com/health/bmi-calculator/nu00597

Variation in Genes Related to DNA Repair Can Increase Risk of Pancreatic Cancer

Our body normally repairs damage to DNA caused by carcinogens or mistakes in DNA when cells divide. Many different genes encode each step of this process. Cancer can develop when the DNA of a normal cell is not repaired properly, and uncontrolled growth follows. We and others have found that the genes involved in the DNA repair process are important in pancreatic cancer. We chose specific variants in dozens of DNA repair genes. We then compared these variants in the DNA from over 1,000 Mayo Clinic pancreatic cancer patients to a similar number of healthy controls. We found that some variants increase risk and others are protective. One gene that is of great interest is MMS19L, as it was significantly associated with increased risk for pancreatic cancer.

References:

PALB2: A New Cancer Susceptibility Gene for Familial Pancreatic Cancer (FPC)

Collaborators at Johns Hopkins University have found yet another gene for pancreatic cancer that runs in families. Based on a project that finished sequencing the genome of pancreatic tumors last year, the team focused on the PALB2 gene, a part of the BRCA2 pathway. The PALB2 gene was sequenced in 96 FPC patients’ DNA. Around 3 percent had an inherited mutation in the gene. Collaborators in Canada found that one out of 104 FPC patients carried a PALB2 mutation. More research by the PACGENE team is underway on hundreds more FPC patients to help understand the best way to develop genetic tests.

References:
Message from the Study Coordinators

We have enjoyed working with you and your families on our pancreas research. Thank you for the time and dedication you put into taking part and providing us with information and blood or tissue samples. If you learn of any relevant updates to your personal or family medical history in the future, we would be grateful if you let us know by mail or by calling us at 1-800-914-7962. These updates may include new diagnoses of cancers, pancreatic conditions, or genetic testing results.

Jodie Cogswell and Cindy Chan
Study Coordinators

PACGENE Consortium

The Pancreatic Cancer Genetic Epidemiology (PACGENE) Consortium includes seven medical centers in the U.S. and Canada that are gathering information and blood samples from families with a history of pancreatic cancer. Doctors and scientists are studying why pancreatic cancer seems to run in some families. They are looking for new genes that increase the risk of developing this disease.

People who wish to join the family registry must be 18 years of age or over and meet one of the following criteria:
- At least two family members who ever had pancreatic cancer, or
- At least one family member who ever had pancreatic cancer and at least one family member who ever had melanoma.

If you or someone you know might be interested in taking part, please contact the Pancreas Research Team at 1-800-914-7962.

Cancer of the Pancreas Screening (CAPS 3) Study Update

The goal of this study was to find the best way to screen for pancreatic cancer. The study included a genetic counseling session, blood tests, an MRI, a CT scan and an endoscopic ultrasound (EUS). Five medical centers across the U.S. worked together on this study, and they are now finished recruiting participants. Mark Topazian, M.D. examined about 50 people from the Family Pancreas Registry at Mayo Clinic. The study is currently in follow-up phase and analysis. We would like to thank everyone who took part in this study at Mayo Clinic.

Who’s Doing Pancreatic Cancer Research?

The Pancreatic Cancer Research Map
http://www.cancermap.org/pancreatic/index.jsp
This website provides comprehensive information about pancreas research studies in the U.S.

ClinicalTrials.gov
http://www.clinicaltrials.gov/
This website is a detailed and current registry of federally and privately supported clinical trials for many different diseases and conditions in the U.S. and around the world.

Clinical Trials at Mayo Clinic
http://clinicaltrials.mayo.edu/
This website provides information about research studies for many different diseases and conditions at Mayo Clinic.
Specialized Program of Research Excellence (SPORE)

SPOREs are funded by grants from the National Cancer Institute (NCI) to promote cancer research by translating discoveries from the laboratory to the clinic. The goal is to develop new ways to prevent, diagnose, and treat cancer.

Medical centers, universities, and other organizations may work together towards this common goal. Researchers may be from many different backgrounds, including biologists, epidemiologists, statisticians, and physicians.

Patient advocates also play a key role in SPOREs in many ways, including:
- Identifying and finding solutions to the needs and issues of patients and their families and friends.
- Supporting and guiding SPOREs and its research studies by providing feedback and advice.
- Promoting education and awareness of current knowledge about cancer and cancer research.

Mayo Clinic received a SPORE grant in pancreatic cancer in 2008 which provides funding for research for an additional five years. Gloria Petersen, Ph.D. is the director of this SPORE.

For more information about SPOREs, please visit the NCI SPORE website at: http://spores.nci.nih.gov

Representing Advocacy for Pancreas Patients with Outreach and Research Teams (RAPPORT)

RAPPORT is a group of patient advocates in Minnesota established in October 2008 as an affiliate of the Pancreatic Cancer SPORE at Mayo Clinic. The group consists of pancreatic cancer survivors, caregivers and other stakeholders, and its current mission is to determine the critical issues facing those affected by pancreatic cancer and to serve as a resource to both the pancreas research community and outreach efforts, starting in Minnesota. For more information about RAPPORT, please visit their website at: http://rapport-pancreas.org.

Past Newsletters...

For more information about PACGENE, CAPS 3, and family registries, please refer to previous volumes of this newsletter, which may be requested by contacting the Pancreas Research Team and also can be found online at:
http://www.mayo.edu/pmts/mc1100-mc1199/mc1185-0209.pdf

Resources

The Lustgarten Foundation for Pancreatic Cancer Research
http://www.lustgarten.org
Non-profit organization for supporting pancreatic cancer research and education.

Pancreatic Cancer Action Network, Inc.
http://www.pancan.org
National advocacy and patient support organization for pancreatic cancer.

How to Contact Us

Address: Pancreas Research Project
Charlton 6
Mayo Clinic
Rochester, MN 55905
Phone: 1-800-914-7962
E-mail: pancreas@mayo.edu
Website: http://mayoresearch.mayo.edu/mayo/research/petersen_lab

Study Coordinators: Cindy Chan
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