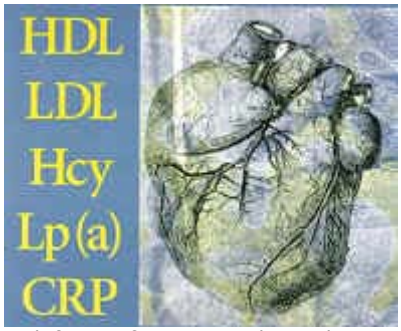
Homocysteine Standardization Program

Public Health Problem

- In only 50% of cases of coronary heart disease is the cause attributable to the established risk factors of hypertension, cigarette smoking, or elevated total and low-density lipoprotein cholesterol levels.
- Both markedly and mildly elevated circulating homocysteine concentrations have been recognized as emerging risk factors for premature atherosclerosis.
- However, it is unclear whether homocysteine is a causal risk factor for cardiovascular disease or an epiphenomenon secondary to the vascular disease itself.



Risk factors for coronary heart disease

CDC Laboratory Response

Accurate and precise laboratory measurements of plasma homocysteine are needed to answer these questions. CDC addresses the need for these measurements on many fronts.

- Using a CDC reference method, the laboratory measures plasma homocysteine levels in samples obtained from participants in the National Health and Nutrition Examination Survey.
- In 1998, CDC conducted an international laboratory comparison study for plasma homocysteine with 14 laboratories to evaluate method differences.


DLS scientist developing reference method for analyzing homocysteine levels

- In 2000, CDC helped the College of American Pathologists (CAP) develop its first homocysteine survey. CDC continues to provide confirmation values for each CAP homocysteine survey on the basis of results obtained using the CDC reference method.
- CDC is collaborating with the Mayo Clinic to evaluate a mass spectrometry method that the Mayo Clinic developed as a potential high-order reference method.
- CDC is also collaborating with the National Institute of Standards and Technologies to support reference materials development.

- CDC participates in the International Federation of Clinical Chemistry Working Group for Homocysteine Standardization.

- CDC continuously evaluates new assays for measuring homocysteine and publishes evaluation results in professional journals.

Public Health Impact

Reference methods and materials that CDC helps develop and evaluate provide reliable and standardized measurements that can help laboratories assess preventable risk factors associated with adverse health outcomes or disabling conditions.

Future Plans

We plan to evaluate the impact of fortifying cereal-grain products with folic acid on levels of homocysteine in the population and on outcomes associated with vascular disease. We will investigate whether homocysteine levels could serve as surrogate measures of vitamin B status. CDC will also focus on evaluating low-technology and field-friendly methods that would enable laboratories in less developed countries to measure homocysteine levels.

Questions or Comments

http://www2.cdc.gov/nceh/contactnceh/frmSubmit.asp

The Centers for Disease Control and Prevention (CDC) protects people's health and safety by preventing and controlling diseases and injuries; enhances health decisions by providing credible information on critical health issues; and promotes healthy living through strong partnerships with local, national, and international organizations.

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