Anemia Elevates Risk of Physical Decline in Older People

Anemia doubles the risk that an older person will develop serious physical declines that can erode the ability to live independently, according to a new epidemiological study supported by the National Institute on Aging (NIA) and others*. It is the first longitudinal research to find an association between physical decline in later life and anemia, a blood condition that affects about 13 percent of older Americans.

The study,** published in the August 1, 2003 issue of the *American Journal of Medicine*, also found that older people who do not yet have anemia, but whose blood tests are just above the traditional cut off point for diagnosing the condition, are 1.5 times more likely to develop physical declines than those who have normal blood hemoglobin levels.

"This study suggests that even mild anemia is a risk factor linked to reduced ability of older people to function at their fullest potential," said Jack Guralnik, M.D., Ph.D., an NIA epidemiologist who coauthored the study. "Further research will tell us whether the treatment of anemia can prevent the progressive decline in function that eventually results in disability."

The investigators, led by Brenda Penninx, Ph.D., of Wake Forest University School of Medicine in Winston-Salem, North Carolina, followed a group of 1,146 people, ages 71 and older, for more than 4 years, assessing their ability to perform three physical tasks: standing balance, a timed 8-foot walk, and ability to rise from a chair. Each of these activities was scored on a 5-point scale (0=an inability to do the test; 4=top performance). These points were added together to create a 0 to 12 overall score. These scores were correlated with blood samples obtained from the participants.

Anemia is defined by the World Health Organization (WHO) as hemoglobin levels below 12g/dL in women and below 13g/dL in men. For this study, Dr. Penninx classified men and women whose blood hemoglobin levels were within1g/dL of the WHO standard (12-13g/dL for women, 13-14g/dL for men) as having borderline anemia.

At the end of the four-year study, two-thirds of the participants had at least modest declines in physical performance scores, with 346 people (30 percent) having substantial decreases. Overall, those who did not have anemia averaged a 1.4 point decline on the 12-point scale during the study. In contrast, those who had borderline anemia dipped an average of 1.8 points and those with anemia dropped an average of 2.3 points on the 12-point scale. Women with anemia showed the greatest physical decline followed by women who had borderline anemia. Also, men with anemia had significantly greater physical decline than men with normal blood hemoglobin levels. Men with borderline anemia were more likely to show physical decline than those whose hemoglobin levels were slightly higher than the WHO standard. Excluding people who had ailments associated with anemia, such as cancer, kidney disease, and infections, did not change the findings.

In a previous study, using the same data, Dr. Penninx found that a decrease in physical performance is highly predictive of hospitalization, nursing home admission and mortality. In his work, Dr. Guralnik has found that a 1.5 point decrease is associated with a 50 percent increased risk of developing a disability that impairs a person's ability to do activities of daily living, such as bathing, eating and dressing.

"Although no study yet shows that treating anemia in older people reduces the incidence of physical decline, our study certainly suggests that this may be the case," Dr. Penninx said. "Anemia deserves clinical attention. That's the take home message."

Anemia affects at least 3.4 million Americans and is the most common blood disorder in the United States. It occurs when the body doesn't produce enough red blood cells or red blood cells are prematurely destroyed. More specifically, it is defined as a low concentration of hemoglobin, the main component of red blood cells that transports oxygen from the lungs to other tissues and then returns carbon dioxide from the body to the lungs. A person who has anemia can feel fatigued, dizzy, apathetic or irritable. Other common symptoms include muscle weakness, shortness of breath, rapid heart beat, and pale skin. However, the warning signs are often subtle and can be difficult for doctors to detect.

Anemia can be caused by vitamin or mineral deficiencies, particularly of iron, vitamin B12, and folic acid. Underlying diseases including cancer, rheumatoid arthritis and chronic kidney disease also can trigger anemia. But in up to 25 percent of cases, no cause can be identified. Treatment varies, but dietary changes, nutritional supplements, and medications can help.

The National Institute on Aging is one of 27 Institutes and Centers that constitute the National Institutes of Health. The NIA leads Federal efforts to support and conduct basic, clinical, epidemiological, and social

research on aging and the special needs of older people. Press releases, fact sheets, and other materials about aging and aging research can be viewed at the NIA's general information Web site, www.nia.nih.gov.

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** B.W.J.H. Penninx, J.M. Guralnik, G. Onder, L. Ferrucci, R.B. Wallace, and M. Pahor, "Anemia and decline in physical performance among older persons," *American Journal of Medicine*, Vol. 115, No. 2, pp. 104-110.