TNF-Blockers Restore Normal Growth in Children

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A study that evaluated children with severe juvenile idiopathic arthritis before and after starting anti–tumor necrosis factor treatment indicated that these biological agents appear to be effective in restoring normal growth in this population, reported Dr. Pirjo Tynjälä.

The results also suggest that the improvements in growth are related to the impact these treatments have on inflammation, wrote Dr. Tynjälä of the Hospital for Children and Adolescents, Helsinki University Central Hospital, and her associates (Ann. Rheum. Dis. 2006;65: 1044-9).

The study followed the growth of 71 children with polyarticular disease–course juvenile idiopathic arthritis for 2 years before and 2 years after starting etanercept (43 patients) or infliximab (28 patients). When treatment started, mean age was 9.6 years, mean disease duration was 5.7 years, and the children were refractory to conventional disease-modifying antirheumatic drugs. The dose of etanercept (Enbrel) was 0.4 mg/kg twice a week; the dose of infliximab (Remicade) was 80-200 mg every 6-8 weeks administered intravenously.

In the group overall, the mean growth velocity increased significantly during treatment, which was mostly because of the increase in the 53 children whose growth was delayed before starting treatment. Among the 18 children whose growth was normal or accelerated before treatment, growth velocity increased, but not significantly, during treatment. Over the 4 years, there were no significant differences in the total steroid dose among those with delayed growth and those with normal growth.

After 24 months of treatment, disease was inactive in 52% of the patients, and activity had decreased in the remainder, Dr. Tynjälä and her colleagues wrote.

The change in inflammatory activity "remained a significant predictor of the growth velocity, even after glucocorticoids were taken into account," suggesting that the improved growth velocity may be because of the reduction in inflammation and not "a direct effect of biological agents on growth or on skeletal maturation." ■

Continued from previous page

gans, longer life expectancy, and more rapid cell division.

Dr. Slovis said that children receive more radiation than do adults when the same dose of radiation is used. Radiation doses are measured with a phantom and set at a fixed midpoint, he said. This measurement is based on 14 slices, but is independent of the thickness of those slices.

Studies of the effects of radiation in the survivors of the atomic bombings of Hiroshima and Nagasaki include data specific to children.

Among the findings noted by Dr. Friedman is an increased incidence of leukemia, breast cancer, colon cancer, thyroid cancer, and lung cancer. These do not occur immediately, but at the times that would be expected for the specific cancer to develop.

Girls are more radiosensitive than boys, he said, and the risk of cancer development varies dramatically with the patient's age at exposure.

Dr. Slovis said some children with hereditary diseases—including ataxia-telangiectasia, basal cell nevus syndrome, Cockayne's syndrome, Down syndrome, Fanconi's anemia, Gardner's syndrome, Nijmegen breakage syndrome, and Usher's syndrome—are extremely sensitive to radiation and should not be exposed at all, if possible.

He also discouraged the use of radiation in children with hereditary syndromes that have been associated with childhood cancers.

Fetuses and premature babies are especially vulnerable, added Dr. Slovis. He hailed the late Dr. Alice Stewart's work for establishing that radiation in utero increases the relative risk of leukemia and other malignancies.

"How much radiation does a 25-week surviving preemie get?" he asked, comparing them to third-trimester fetuses and urging limited testing in infants. "I don't say don't get an indicated CT," he said. "I say get the indications, and work it through." Physicians should be sure each test they order is necessary, should use "the least invasive modality that gives a high certainty of success," and should discuss the case with a pediatric radiologist whenever they are unsure. ■