Juvenile idiopathic arthritis, the most common pediatric rheumatologic disease, continues to be associated with significant long-term morbidity and mortality despite recent developments that have improved the understanding of the disease and increased the evidence base for emerging therapies. The blame for failing to achieve better outcomes can be placed squarely on the variability in patient care and the absence of definitive management standards, both of which inhibit research and clinical progress and can compromise patient safety, outcomes, and practice efficiency, according to Dr. Esi Morgan Dewitt. "Determinants of patient outcomes are not systematically tracked in most pediatric rheumatology centers, and we lack evidence-based treatment guidelines. Valuable information that could improve quality of care is not available," said Dr. Dewitt, a pediatric rheumatologist at the Cincinnati Children's Hospital Medical Center. "In addition, most centers do not collect patient data in a fashion that allows tracking of medication use, safety, or effectiveness."

To minimize variation in care across sites and to improve patient outcomes, Dr. Dewitt and other pediatric rheumatologists from centers nationwide have spearheaded the development of a quality improvement initiative called PRINCES (Pediatric Rheumatology Improvement Network for Continuous Excellence and Safety). The collaborative, user-led innovation network aims to develop a data-collection tool to capture quality measures and variables efficiently and to streamline the transfer of evidence-based treatment into practice. Toward this end, quality improvement teams comprising a physician champion and practice nurse from participating sites will receive training on evidence-based strategies for chronic disease management. Each team will work over 12- to 18-month periods to achieve measurable improvements in JIA care, said Dr. Dewitt, who discusses the PRINCES mission and goals in this month’s column.

RHEUMATOLOGY NEWS: What specific gaps in JIA care will the PRINCES initiative target?

Dr. Dewitt: Juvenile arthritis frequently requires chronic treatment with immunosuppressive medications including biologics, but treatment is not governed by evidence-based protocols, despite the large number of randomized, controlled trials of therapeutics. By creating a large database of JIA patients, systematically recording and tracking how patients are being treated, and simultaneously studying patient outcomes, participating pediatric rheumatologists will be able to better understand which treatment approaches are optimal. Another facet in the management of JIA that needs to be addressed includes disease- and medication-monitoring guidelines. For example, adherence to published guidelines for uveitis screening is not well documented. Furthermore, guidelines for monitoring medication toxicity were created for adult patients. These may not be relevant in the pediatric population. The proportion of physicians and patients adhering to these guidelines is unknown. We also don’t know whether adherence to prescribed treatment results in better outcomes.

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Infectious diseases were the most common serious adverse event in this registry. There were no reports of tuberculosis or opportunistic infections. The 0.01 infectious SAEs per patient-year reported in the German registry are similar to the 0.02 SAEs per patient-year reported in the U.S. registry and the 0.04 rate reported in open-label, long-term extension studies, according to Dr. Horneff. Taking steroids with etanercept tripled the risk of developing a serious infection (odds ratio, 2.9; P = .007), but adding methotrexate did not significantly increase the risk of infection (P = .085). Autoimmune uveopathies occurred in 2% of children, the equivalent of 0.007 SAEs per patient-year of observation. The average age of enrollees in the German registry was 12.5 years, and about 70% were female. The average disease duration was 4.3 years. The primary diagnoses were polyarthritis (42%) and extended oligoarthritis (17%). In all, 11% had systemic disease.

"Randomized controlled trials showed that polyarticular JIA can successfully be treated with TNF inhibitors etanercept, adalimumab, and infliximab, and open-label extension studies demonstrated long-term efficacy," Dr. Dewitt said. "Although no causative relationship can be concluded between etanercept and malignancies, the use of TNF inhibitors should be limited to those patients with severe polyarticular JIA who do not respond to previous treatment. Furthermore, combination treatment with methotrexate or other immunosuppressants may increase clinical efficacy but may also increase the risk, and should, therefore, be indicated with caution.

Nevertheless, the extensive use of immunosuppressants other than methotrexate as alternative treatment or pretreatment before considering TNF inhibitors may also affect the risk for malignancies and should be avoided."

Dr. Horneff disclosed having financial relationships with a number of companies, including Abbott, Boehringer-Ingelheim, Bristol-Myers Squibb, Chugai, Lilly, MedImmune, Merck Serono, Novartis, Nycomed, Pfizer, Roche, Sandzio, and Wyeth.