Key features of chronic nonbacterial osteomyelitis identified in groundbreaking study

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New research presented at ACR Convergence, the American College of Rheumatology's annual meeting, identified key clinical features of chronic nonbacterial osteomyelitis (CNO), which leads to an important

step toward the development of much-needed classification criteria for a disease that affects children and young adults worldwide (ABSTRACT #1162).

Chronic nonbacterial osteomyelitis (CNO), also called chronic recurrent multifocal osteomyelitis (CRMO), is a disease that mostly affects children and young adults. Hallmark symptoms include painful swelling of the bones, especially the long bones, but also the pelvis, clavicle and spine.

Currently, there are no classification criteria for CNO. That means rheumatologists, pediatricians and other physicians lack widely accepted sets of defining features of the disease to identify patients for clinical trials and research studies. There are also no validated diagnostic criteria for CNO, which are sets of key disease features used to diagnose these young patients. In this new study, researchers set out to refine the potential items that could be part of classification criteria for pediatric patients with CNO. To do that, they conducted a study that compared clinical, laboratory and imaging features of CNO to features of other diseases that mimic it.

"There is no specific confirmatory test for CNO, and many children need a bone biopsy to exclude cancer and infection," says study co-author Yongdong Zhao, MD, Ph.D., RhMSUS, Assistant Professor and Director of Ultrasound at Seattle Children's Hospital and its Center for Clinical and Translational Research. "A sensitive and specific classification criteria set will enable researchers to identify appropriate patients to carry out high-quality clinical trials, which physicians with less experience in this potentially debilitating disease need to determine effective treatments."

For this international study, researchers collected clinical and investigational features of CNO from 450 patient cases from 20 medical

centers across four continents and seven countries. They also gathered cases of patients who had likely 'mimickers' of CNO. All patients included in the study had at least 12 months of medical follow-up unless pathology or labs in mimicker cases confirmed the diagnosis.

They reviewed each patient's case to determine how confident they were that the patient either had CNO or one of its mimicker diseases. The confidence levels used in the study had a cut-off measurement of +/- 2 for "moderately confident." They used 264 CNO and 145 mimicker control cases for the analysis.

When comparing to patients with mimicker conditions, they found a higher percentage of female patients with CNO. They also found that patients with CNO often have intermittent versus continued pain, especially in the neck, back and upper torso, and less commonly have fevers. Another common feature of CNO was swelling of the clavicle, while active arthritis was a less common feature. CNO patients also commonly undergo whole body imaging tests, usually MRIs. Imaging helps to identify other common features of CNO, the study showed.

CNO patients commonly have symmetric patterns of bone lesions, and their disease frequently involves these bones: the thoracic spine, clavicle, pelvis, bilateral femur, bilateral tibia, unilateral fibula and feet. Imaging data collected in the study also showed that signs of malignancy and infection, such as cortical bone disruption, disorganized bone formation, mass structure, marrow infiltrates, and abscess or geographic appearances, are less common in patients with CNO. The study also found that completed and sustained responses to antibiotics are less frequent in young people with CNO.

Using actual patient cases, the study successfully identified key features of CNO that could support the development of the much-needed classification criteria for this disease, the researchers said.

"These results confirmed important features that physicians can look for to distinguish CNO from its mimicker diseases in daily practice using a large international database," says Dr. Zhao. "The next step is to determine the appropriate weight of each criterion by an expert panel using 1000MINDs. A threshold will be set for the new criteria, and another cohort of patients will be used to validate the set. We welcome more collaborators to join us for the collection of a validation cohort."

More information: acrabstracts.org/abstract/comp … -case-control-study/

Provided by American College of Rheumatology

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