

Disease activity definitions do not always identify the same patients



Definitions of disease activity are important to help define and identify appropriate treatment plans, with the aim of achieving disease remission

INTRODUCTION

Juvenile idiopathic arthritis is more commonly referred to as JIA, and includes most types of arthritis seen in children. JIA is a type of inflammatory arthritis that causes pain and swelling in one or more joints.

The aim for children with JIA is for them to feel better and to have no symptoms of arthritis. This is referred to as *clinically inactive disease* (sometimes shortened to CID). Doctors may keep changing treatments until children achieve clinically inactive disease. However, there is no single test for clinically inactive disease, so doctors rely on different criteria. The challenge is that we do not know which are the perfect criteria, and there are many different definitions of clinically inactive disease being used in children with JIA. The fact that there are multiple definitions does not matter unless they do not identify the same children as being in or out of clinically inactive disease. However, we know that these definitions use different measurements (see table below), so it is possible that they may identify different children as being in or out of clinically inactive disease.

Name of the clinically inactive disease definition	Do they use tests carried out by doctors?	Do you they use doctors' opinions?	Do they use parents' and patients' opinions?	Do they use the ESR* blood test?
Wallace's preliminary criteria	✓	✓	✗	✓
JADAS10	✓	✓	✓	✓
cJADAS10	✓	✓	✓	✗

*The ESR blood test (or erythrocyte sedimentation rate test) measures how fast red blood cells fall to the bottom of a test tube. The quicker they fall, the more likely it is that the person has high levels of inflammation. This is called a marker of inflammation.

JADAS stands for Juvenile Arthritis Disease Activity Score and cJADAS is the 'clinical Juvenile Arthritis Disease Activity Score'. Both the JADAS tools used in this study looked at disease activity in 10 joints.

WHAT DID THE AUTHORS HOPE TO FIND?

The authors wanted to compare the definitions in the same group of children with JIA, at the same point in their disease, to see if the different definitions would give the same answer about each child.

WHO WAS STUDIED?

The study included 1415 children with JIA who were part of the Childhood Arthritis Prospective Study (CAPS) at seven hospitals in the United Kingdom. CAPS follows children from their first hospital visit for JIA for up to 10 years. Most of the children studied were female and had fewer than five swollen joints at their first appointment.

HOW WAS THE STUDY CONDUCTED?

This study looked at the information available on all children 1 year after their first visit to hospital. The researchers applied a number of different definitions to see whether or not each child was in clinically inactive disease. Then they compared the groups of children identified by each definition.

WHAT WERE THE MAIN FINDINGS OF THE REVIEW?

Fewer than half of children were in clinically inactive disease at 1 year, meaning that many still had evidence of ongoing signs or symptoms from their arthritis despite their treatment.

Around two in five children achieved clinically inactive disease according to the JADAS definitions, which included both doctor and patient or parent input. The two JADAS definitions picked up nearly the exact same group of children. Given than one needed a blood test to measure markers of inflammation and the other did not, we can say that this test is probably not necessary for telling if a child achieved clinically inactive disease according to these definitions.

Fewer children (around one in four) achieved clinically inactive disease according to the Wallace definition, which included an assessment by a doctor, but not by the patient or parent. Unlike before, very different groups were picked up by this definition compared with the JADAS definitions. The main difference between the groups was the patient/parent rating of wellbeing. Children in clinically inactive disease according to doctor input only (Wallace preliminary) had worse wellbeing than those in clinically inactive disease according to both doctor and patient/parent input (JADAS10/cJADAS10).

ARE THESE FINDINGS NEW?

Yes. This is the first study to apply these definitions of clinically inactive disease in a single group of children with JIA, at the same point in their disease. It shows that not all definitions identify the same groups of children with JIA as being in or out of a state of clinically inactive disease. This is important, especially when doctors use the definitions to make decisions about treatment. The findings also suggest that a blood test may not be needed to test for clinically inactive disease.

WHAT ARE THE LIMITATIONS OF THE STUDY?

As with all real-world studies, there was some missing information. This was because children missed their appointments, or did not have certain tests. Other information in the study was used to get an idea of what the missing information might look like.

Although this study has shown differences in clinically inactive disease definitions, the information cannot be used to say which definition of clinically inactive disease is the best. The cJADAS10 measurement tool is the easiest to use in the clinic, but the authors cannot say whether one definition picks out children with JIA who do best in the long-term.

WHAT DO THE AUTHORS PLAN ON DOING WITH THIS INFORMATION?

The authors are currently looking at what happens in the long term to children with JIA who are in different clinically inactive disease groups. If there is a definition which picks out children with a better outlook, this should be the aim in the clinic and in future research trials.

WHAT DOES THIS MEAN FOR ME?

Most children with JIA should not expect to have reached clinically inactive disease as soon as 1 year after diagnosis.

If your child is being treated for JIA, their doctor may use one of these definitions to work out if they have achieved clinically inactive disease. These definitions may not require a blood test to be done, although blood tests may still be needed for other reasons.

Using these definitions could mean that your child receives different treatment or treatment from physiotherapists or pain specialists. For example, using a definition of clinically inactive disease which includes input from you or your child helps to work out whether they still have joint pain or other symptoms even if their joints are not swollen.

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