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MRI detects early damage to chemotherapy child hearts

Detecting early damage to a child's heart following chemotherapy is possible using MRI scans, says a study from Canada.

Even when children's heart function appeared to be normal, a new MRI method of mapping the heart was able to identify damage, University of Alberta researchers said.

A UK cardiologist said the impact of anthracycline treatment on children's hearts was only now being understood.

Early detection was crucial, he said.

While chemotherapy treatment with anthracyclines is known to be effective against many types of cancer, it can lead to irreversible changes to the heart muscle which may not become apparent until several years after treatment.

[Writing in the Journal of Cardiovascular Magnetic Resonance](#), the researchers said they performed MRI scans on children and young adults aged seven to 19 who were in remission following this type of treatment.

Using an emerging MRI method called T1 mapping, they said they were able to identify the early effects on patients' hearts.

This happened even in children whose heart function appeared normal by ultrasound.

Dr Edythe Tham and Dr Richard Thompson, who led the study, said: "In childhood cancer survivors, MRI changes were related to anthracycline dose given to the children.

"These changes are also mirrored by thinning of the heart wall and a reduction in the exercise capacity."

Early protection

Dr Chris Plummer, consultant cardiologist at the Freeman Hospital in Newcastle, said the side effects of chemotherapy were well-known.

"Chemotherapy with anthracyclines is a very effective treatment for cancer but it can be quite toxic to the heart.

"We've known that for a long time but the number of children affected is only becoming appreciated now.

"We have to look for ways to protect the heart and intervene earlier when damage occurs.

"Waiting for visible heart damage to appear is too long to wait."

But Dr Plummer said carrying out an MRI scan of a child's heart was not an easy thing to do.

"Scanning the heart is more difficult than other organs because it is constantly in motion. But with modern scanners the images are fantastic.

"It's the best way of looking at the structure and function of the heart - and it's entirely safe.

"It is an excellent way of precisely monitoring heart function in children."

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