

# Brain cancer breakthrough could provide better treatment

19 September 2017



Credit: Newcastle University

A new discovery about the most common type of childhood brain cancer could transform treatment for young patients by enabling doctors to give the most effective therapies.

A study by Newcastle and Northumbria universities, presented at Children with Cancer UK's Scientific Conference, taking place today and tomorrow, has found that childhood medulloblastoma can be separated into seven different subgroups which all have their own biological and clinical characteristics.

Experts believe this new information, which shows each subgroup responds differently to treatment and so can be targeted individually, could in the future help doctors better decide how to treat each individual patient. Doing this would make sure each child gets the treatment that's most likely to work for them, which could lead to increased survival.

## Common brain cancer

Medulloblastoma is the most common brain cancer affecting young people, with an estimated 70-80

patients diagnosed each year in the UK. With five-year survival for medulloblastoma at just 64%, there is an urgent need for greater understanding of the condition in order to assign patients to the most appropriate treatment programme.

Children with medulloblastoma are currently given a combination of surgery, chemotherapy and radiotherapy, but this course of treatment can have numerous debilitating side effects, including impaired [brain](#) function, growth deficits and social problems.

By using this discovery to personalise treatment to the specific biology of their cancer, gentler therapies could be used for [children](#) in those subgroups with a good prognosis, which could make a huge difference to the long-term health prospects of those who survive treatment.

Similarly, it means that more intense treatments could be reserved for those in the difficult-to-treat subgroups.

In the longer term, finding the best treatments for each subgroup could lead to new drug and treatment options being developed.

## New insight

Children with Cancer UK, Cancer Research UK, Great Ormond Street Children's Charity, and the Brain Tumour Charity provided funding for the study.

Steve Clifford, Professor of Molecular Paediatric Oncology at the Wolfson Childhood Cancer Research Centre, Newcastle University, has led the research.

He said: "Medulloblastoma is the most common type of malignant [paediatric brain tumour](#) and it is a devastating condition that causes approximately 10 percent of all childhood cancer deaths.

"Our research has provided a critical new insight into the cancer's molecular basis and it is a significant step forward in enhancing our understanding of this life-threatening disease.

"This new discovery allows us to undertake studies to see how we could use these insights to personalise treatments according to the biological features of each patient's tumour."

Cliff O'Gorman, Chief Executive of Children with Cancer UK, said: "We are greatly encouraged by these findings, which give us a greater understanding of medulloblastoma and crucially open up the possibility of giving young patients more effective treatments.

"We must continue to look for ways to improve survival for children and young people with this devastating condition, and to reduce the impact that aggressive cancer treatments can have on them as they transition to adulthood.

"It is crucial that we invest in clinical trials to build on findings like this and make cutting-edge treatment and precision medicine a reality for all young [cancer patients](#) in the UK."

Neil Dickson, Vice Chair of The Brain Tumour Charity and co-funders of the project, said: "These findings are extremely encouraging and will enable more accurate diagnosis and appropriate [treatment](#) for those affected by [medulloblastoma](#)."

Provided by Newcastle University

APA citation: Brain cancer breakthrough could provide better treatment (2017, September 19) retrieved 15 July 2022 from <https://medicalxpress.com/news/2017-09-brain-cancer-breakthrough-treatment.html>

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