Cancer breakthrough could save children's lives

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(PhysOrg.com) -- A cancer which claims the lives of thousands of children worldwide every year is a step closer to being cured thanks to a breakthrough by scientists at Newcastle University.

New research, published in the current edition of the American publication *Clinical Cancer Research*, could offer hope to parents whose children suffer relapses after being treated for neuroblastoma.

Neuroblastoma, a cancer mainly affecting children under the age of 5 years, arises from the sympathetic nervous system and can occur anywhere from the neck to the groin but is commonest in the abdomen.

It is the second biggest cancer killer of children in the world and it remains one of the most difficult childhood cancers to cure.

Every year in the UK 100 children will develop the disease and of those about half are in the high risk category.

High risk neuroblastomas have spread to distant sites when discovered in children over a year or 18 months of age, or have unfavourable genetics.

While most neuroblastomas initially respond to treatment, relapsed high risk neuroblastoma is very difficult to cure and in the UK about 30 children die every year from the disease.

But it is hoped the new discovery, which has identified abnormalities in a particular gene called p53, may be one reason why relapses are so hard to cure.

p53 is a tumour suppressor gene which activates cell death or stops cells reproducing after DNA damage, including that from cancer chemotherapy.

Abnormalities of the p53 gene pathway were detected in almost 1/2 of the 41 cases of relapsed neuroblastoma that were studied.

Experts hope they will now be able to develop new types of therapies that target the rogue gene which prevents the resurgent cancer being successfully treated.

Dr Deborah Tweddle, Clinical Senior Lecturer at the Northern Institute for Cancer Research at Newcastle University and Honorary Consultant Paediatric Oncologist at Newcastle upon Tyne Hospitals NHS Trust, who led the research, said: "Over half of all children who get high risk neuroblastoma will relapse and the chances of surviving a relapse are at present very small.

"This research is one of the first to investigate the cause of relapsed neuroblastoma and finding this link is an important breakthrough in developing new treatments".

"We are currently developing drugs that reactivate the p53 gene at Newcastle University and elsewhere these types of drugs are now going into clinical trials and may help patients with neuroblastoma".

"By understanding more about the biology of neuroblastoma at relapse we may be able to prevent it and reduce the deaths of many young children, with its devastating effect on families.

Provided by Newcastle University