

# 90 per cent of childhood leukemia can be cured

Leukemia is the most common type of cancer in children, accounting for around 30 per cent of all cases.

Nevertheless, it is also a highly curable disease and the cure rate has grown from under 50 per cent to 90 per cent currently, said Australian paediatric oncologist and neuro-oncologist, Dr Stewart J Kellie.

According to him the high cure rate was not due to the discovery of new drugs or new techniques but rather improvements in diagnosis and treatment.

"The treatments in Asia are the same as the treatments in Australia, Western Europe and the United States.

"All the drugs we use today in Singapore, Australia or United States were there 20 years or 30 years ago," he said after the opening ceremony of the 16th International Symposium on Pediatric Neuro-Oncology (ISPNO) held in Singapore recently.

"But what happened is that we have learnt how to use the drugs better. So it's not like it has been a big discovery, it has been no big discovery; it has been very small steps using all the knowledge that we had and new knowledge and the same drugs.

"So it has been very exciting but it is not new drugs or new techniques. It is taking what you have and working out how better to use it," he said.

"Because now we can identify a child diagnosed today, we are able to use the same drugs and same treatment but we can work out if you have ten children come through the door, we can tell the one who is most likely to die just from the laboratory analysis of the cells.

"This is called a prognostic factor; we can identify things that predict for the future," Dr Kellie explained.

He said one of the reasons for the high cure rate is that the patients do not receive the same treatment.

"I think the advances in the treatment of leukemia have been in the area of bone marrow transplantation.

"A child who is at the highest risk of dying gets much more therapy and the other children get less so these children don't have the risk of dying from the complications of treatment. Children who are of the highest risk of dying of leukemia get very intensive treatment immediately and sometimes we do a bone marrow transplant in the first month or two," he said.

"And so it is not the drugs that are different, it is the way we understand the difference in risk that the child has



died. So leukemia isn't like one condition, some children are at high risk of dying other children are low risk. And so you vary the treatment, it is not one treatment for all, it's varied," he added.

Dr Kellie also said the probability of getting leukemia is very similar across the community and it is healthy children and not the sick children that get leukemia.

"Healthy, well developed and often very middle class. Leukemia is not a disease of poverty; it is a very much a middle class condition," he said.

The cells of a person's body are normal, Dr Kellie explained, adding that "It's just the cancer cells that contain the genetic abnormality".

"The cancer cells have genetic-like fingerprint abnormality. When we take out the leukemia cells and analyse those genetic changes, we know this child has a good chance of cure or that one a poor chance and then we vary the treatment according to that," he said.

Dr Kellie said 90 per cent of children with leukemia will have a normal life.

"They will go to school, marry and have babies. Fertility after the treatment for leukemia is retained for almost everybody.

"So for that 90 per cent they can expect a normal life span, normal education, and I have people who were trained as doctors who were diagnosed with leukemia when they were children.

"If you go to the shopping mall, you would not recognize which children have had leukemia and which children haven't. So they are normal. The quality of life of a child with leukemia becoming an adult is virtually normal.

"It is very exciting because if you don't die from your leukemia in the first year or two after the diagnosis it won't come back when you were getting married or having babies, or having a job. It won't come back in 10 or 20 years. If leukemia is going to come back and

body, it goes straight to the genetic target and that's where it kills the cells.

"That's why there is this revolution in treatment. We are moving away from radiation and chemotherapy and targeted therapy means the treatment will only affect the cells that have the signature. This is why we are revolutionizing our treatment.

Dr Kellie said targeted therapy was not new as it has been used to treat some types of leukemia and breast cancer for more than ten years already.

"So much of what we are talking about is the identification of genetic abnormalities in cancer cells, because if we know what the genetic abnormality is, then we can manufacture a drug which targets the abnormality," he said.

"But you have to know the target before you can make a drug to hit the target. So it is a very complicated process," he added.

Dr Kellie also said that targeted therapies do not have the side effects that chemotherapy has.

"In fact, many of the targeted therapies are better tolerated than chemotherapy because you don't get the mouth ulcers or the infections or the hair falling out.

"Targeted therapies are targeted whereas chemotherapy is like antibiotic that affects your whole body.

Nevertheless, he said one of the problems with targeted therapy is cost.

"The cost might be a thousand dollars or more every month. The cost of targeted therapy is high. There are many targeted therapies already in commercial production with big drug companies investing in millions of dollars," he added. - SYC

(Professor Stewart J. Kellie is a paediatric oncologist and neuro-oncologist at The Children's Hospital at Westmead, Sydney and clinical professor at the University of Sydney. He is the Chairman of the 16th International Symposium of Pediatric Neuro-Oncology 2014 Singapore. Dr Kellie has an extensive portfolio of book chapters, review articles, original research papers and abstracts. He has a long record of involvement in international clinical research studies and ongoing interest in training paediatric oncology fellows from developing countries. Dr Kellie was awarded a Doctorate of Medicine by the University of Sydney for his thesis titled 'Advances in Paediatric Neuro-Oncology' and served as Chairman of the University's Human Research Ethics Committee for three years.)



kill you it will do that in the first 4 or 5 years.

Dr Kellie also said that leukemia is not hereditary.

"There are a couple of small exceptions but for 97 per cent of the cases, there is no hereditary basis.

"If you were cured of leukemia and became pregnant and have a baby, the chance of that baby having leukemia or getting leukemia is about the same as any other child in the community," he said.

Dr Kellie went on to explain the concept of targeted therapy, the new frontier of cancer treatment as compared with conventional treatment.

"If you get an infection and I give you an antibiotic, the antibiotic goes everywhere from your toe to your head but you might have the infection in your throat.

"Now because we are understanding more about the genetics of cancer cells, and we know what the fingerprint of the abnormality in the cancer cell is, there are now new treatments which target just that change and so that treatment goes only to your throat and nowhere else.

"Targeted therapy doesn't affect your whole