ePathWay
THE ROYAL COLLEGE OF PATHOLOGISTS OF AUSTRALASIA

NOVEMBER 2017 | PUBLISHED BY RCPA

ISSUE #075

IN THIS ISSUE

INTERESTING FACTS

One in every three

The proportion of all cancers, diagnosed around the world, that are skin cancers.

44.8%

The level of underutilisation in pathology testing compared to the level of overutilisation (20.6%).

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Welcome to the November 2017 edition of ePathWay

International Pathology Day (IPD) was celebrated around the globe on November 15. Australia's main event, held at the College in Sydney, focused on skin cancer. Media personality Deborah Hutton attended where she discussed her personal brush with this disease.

Our other stories celebrate pathology's contribution to healthcare and the community through:

- showcasing new treatments that have put melanoma on the back foot
- outlining a new melanoma staging protocol to that better relates diagnosis to treatment
- explaining the research that led to a College Fellow receiving a prestigious award for transforming the lives of patients with chronic myeloid leukaemia.

Pictures of IPD events can be found on our Facebook page, or review the latest tweets from our CEO Dr Debra Graves (@DebraJGraves) or the College (@PathologyRCPA).

International Pathology Day shines a light on skin cancer

The percentage of Australian women of child bearing age who have iron deficiency.

Source: World Health Organization, RCPA

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RCPA President Dr Michael Harrison with media personality Deborah Hutton

The RCPA's sixth International Pathology Day on November 15 focused on the vital role of pathology in diagnosing and informing treatment for skin cancer. At the College's event in Sydney, media personality Deborah Hutton discussed her personal experience with this disease.

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Australian researchers put melanoma on the back foot

Australian researchers have finally put melanoma on the back foot using a combination of new treatments that stop the disease in its tracks and prevent it spreading to other organs.

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Know Pathology Know Healthcare

New melanoma classification should measure up to expectations

In 1787 the first successfully excised melanoma was described as ‘soft and black’ and labelled a ‘cancerous fungous excrescence’. Melanoma is now a well-described skin cancer although staging its progression has been challenging to standardise. A new protocol intended to reduce subjectivity aims to change this.

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RCPA Fellow wins prestigious award for pioneering life changing cancer treatment

RCPA Fellow Professor Tim Hughes has won the GSK Award for Research Excellence 2017 for his role in transforming the lives of patients with chronic myeloid leukaemia (CML) through pioneering the use of tyrosine kinase inhibitors (TKIs).

Prof Timothy Hughes with Prof David Craik (left) and Prof James McCluskey (right) - both recent winners of the GSK Prize

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International Pathology Day shines a light on skin cancer

L-R Professor Kerry Crotty, Professor Richard Scolyer, Sophie Scott (ABC Medical Reporter), Deborah Hutton

The RCPA's sixth International Pathology Day on November 15 focused on the vital role of pathology in diagnosing and informing treatment for skin cancer. At the College's event in Sydney, media personality Deborah Hutton discussed her personal experience with this disease.

"Pathology is such an under recognised profession and, considering the life changing work that pathologists do, I think it is fantastic to recognise it and to bring more awareness. There really would have been no other way for me to have surgery (for skin cancer) without pathology," she told the gathered crowd.

"My future is pathology, that's where I know my safety barrier sits. It's the experts who are around me, the dermatologists, the pathologists, the scientists who are so important of course, with new technologies and advancements within that and where we're going is so important."

The event highlighted the vital role of pathology at both a healthcare and personal level, including significant advances made by pathology and pathologists in the diagnosis and treatment of skin cancer.

Dr Kerry Crotty, Dermatologist and Anatomical Pathologist, outlined the importance of early diagnosis, improved prognosis and advances in treatment for this common disease. She is also developing a Diploma of Dermatopathology Post Fellowship qualification for Anatomical Pathologists and General Pathologists.

“Many of our Fellows are leading the way in terms of research into improving the ability to diagnose and treat many diseases including skin cancer,” explained RCPA CEO Dr Debra Graves.

“Professor Richard Scolyer, who attended our International Pathology Day event, is involved in research that is turning melanoma into a survivable chronic illness rather than a death sentence. Another Fellow, Professor Tim Hughes, was recently conferred the GSK Award for Research Excellence 2017 for his role in transforming the lives of patients with chronic myeloid leukaemia (CML).”

RCPA President Dr Michael Harrison said International Pathology Day is an opportunity for pathologists, scientists, laboratories and the wider community to celebrate the importance of pathology around the globe.

“Each year we receive amazing support from individuals who are willing to share their personal experiences with diagnosis and treatment. This year we are extremely fortunate to have respected media personality Deborah Hutton to discuss her personal experience with skin cancer to help us put a face to pathology.”

The RCPA also released a new position statement on best-practice guidelines on the use of iron studies, Ferritin and other tests of iron status, along with new recommendations to improve patient care by reducing underutilisation of pathology testing, at this year’s IPD event.

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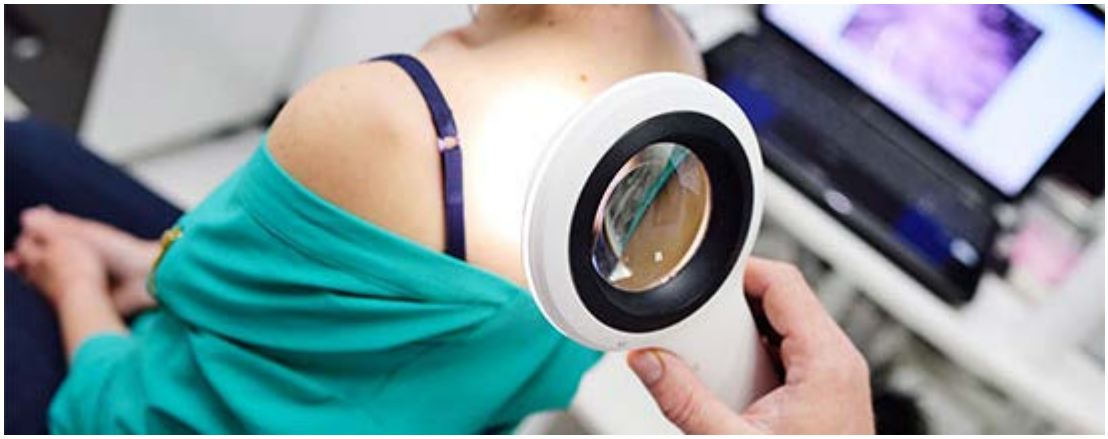
Australian researchers put melanoma on the back foot



Australian researchers have finally put melanoma on the back foot using a combination of new treatments that stop the disease in its tracks and prevent it spreading to other organs.

Two international clinical trials conducted at Melanoma Institute Australia (MIA) in Sydney have successfully prevented the spread of disease in Stage III melanoma patients whose tumours had been surgically removed. These patients had a high risk (40-70%) of their disease progressing to advanced and probably fatal melanoma before this breakthrough. The two trials tested targeted therapy aimed at patients whose tumours are BRAF mutant, and immunotherapy which was given to patients irrespective of their BRAF status.

“BRAF is a human gene that makes a protein called B-Raf which is involved in sending signals inside the cells to direct their growth. When this gene mutates, the cells can multiply in an uncontrollable fashion. The drugs used in targeted therapy block the mutant form of BRAF, effectively stopping the cancer in its tracks,” explained Professor Richard Scolyer, a pathologist from Tissue Pathology and Diagnostic Oncology at the Royal Prince Alfred Hospital, and Co-Medical Director at MIA.

“Immunotherapy basically reboots the body’s immune system. Tumours are very smart and put a shield up to hide them from the body’s immune system. Immunotherapy removes this shield allowing the immune system do its job, which in this case is killing melanoma cancer cells.”

Prof Scolyer said these trials’ results move treating melanoma patients to a whole new

playing field. They also build on previous research that had already shown that targeted therapies and immunotherapies could successfully treat patients with advanced (Stage IV) melanoma that couldn't be removed surgically.

"These trials also represent a world first in terms of giving treatments to melanoma patients at an earlier stage of the disease. Until now, these patients had to play an anxious waiting game to see if their melanoma would spread to other organs after their surgery. It is likely that this research will also spur similar trials in patients with other types of cancers."

The role of pathologists is also evolving as researchers chase melanoma down.

"Pathologists were already critical to the process in terms of diagnosing melanoma and its metastases, and testing for the presence of driver mutations. Their evolving role will be to identify which patients are likely to respond to different therapies and therefore select their optimal treatment pathway," explained Prof Scolyer.

He said these breakthroughs prove that advanced melanoma isn't necessarily a death sentence. It can be stopped in its tracks at an earlier stage reducing the anxiety for patients about progressing to a potentially terminal illness, and ensuring a better outcome for them.

The ultimate goal is to make melanoma a survivable chronic illness rather than a terminal illness, and these results mean this goal is finally in sight. It really is a whole new playing field where melanoma is no longer the captain of the invincible team condemning the home team to a terrible defeat. Melanoma is now well and truly on the back foot and finally on the losing team.

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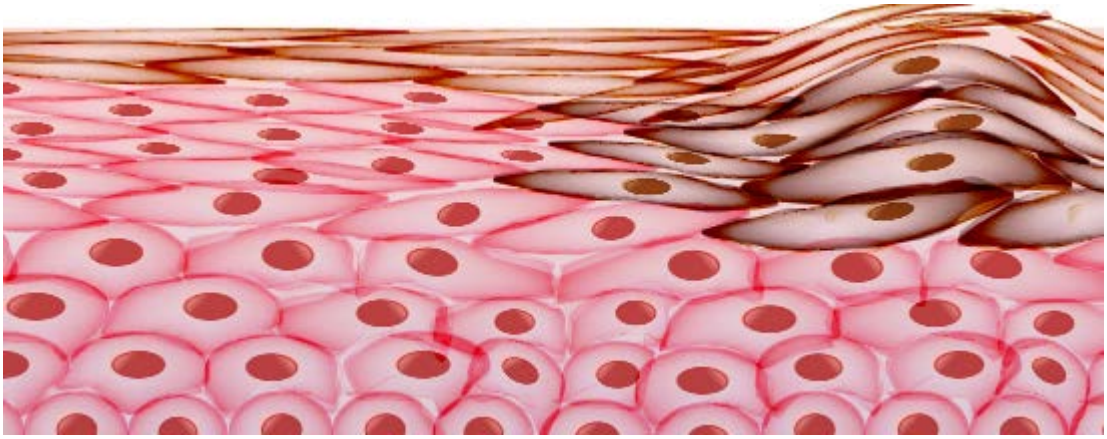
New melanoma classification should measure up to expectations



In 1787 the first successfully excised melanoma was described as ‘soft and black’ and labelled a ‘cancerous fungous excrescence’. Melanoma is now a well-described skin cancer although staging its progression has been challenging to standardise. A new protocol intended to reduce subjectivity aims to change this.

Dr Andrew Packer, General Pathologist practising in New Zealand, said staging tumours is important because it informs treatment decisions and patients’ prognosis.

“When a melanoma reaches a certain size or depth then a clinician will prefer one form of treatment, but at a greater size or depth a different scheme of further investigation and treatment will be more effective. The stage also gives an indication of how advanced the disease is,” he explained.

Dr Packer said the Clark level of invasion has been a benchmark for staging melanoma since it was introduced in the 1960s. This protocol classifies how far a melanoma has infiltrated the skin according to five levels of invasion, but there were issues with its interpretation.

“Levels one and five were usually non contentious, but when it came to levels two, three and four then inter-observer and intra-observer variations plagued the process and the results were not as reproducible as they need to be,” he explained.

An example of inter-observer variation is when 10 pathologists are simultaneously looking at the same specimen through a multi-viewing microscope yet each records a different observation. Intra-observer variation occurs when a pathologist looks at the

same specimen at different points in time and records different observations. “They basically disagree with themselves,” Dr Packer said.

The new classification staging system recommended by the American Joint Commission on Cancer (AJCC) addresses these issues. The most important factors in this new protocol are the thickness of the tumour (known as Breslow’s thickness or depth), the presence of microscopic ulceration, and how fast the cells are dividing (mitotic rate).

“Every melanoma will have its depth in the skin measured using a standardised method. This is because the thickness of the tumour is now known to be more important than the level of skin penetrated. The Clark system is still in the mix but it is no longer relied upon to stage melanomas.”

Microscopic ulceration indicates if the epidermis (outer layer of the skin) on top of a major portion of the melanoma is no longer intact or ulcerated, while mitotic rate is an independent factor for predicting prognosis.

“The AJCC’s new staging system is a worldwide effort at doing the same thing using the same data. Measuring skin depth means the observation is reproducible because it is based on a standardised measure and not on an interpretation of the level of penetration into the layers of the skin,” explained Dr Packer.

Historical descriptions of melanoma bear testimony to the frustration of trying to describe and treat these cancerous fungous excrescences. The genetic revolution has now delivered huge insights and effective treatment options for melanoma. The AJCC Melanoma staging protocol represents another step forward in terms of reproducibly staging this once intractable disease to inform treatment pathways and prognosis.

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RCPA Fellow wins prestigious award for pioneering life changing cancer treatment

RCPA Fellow Professor Tim Hughes has won the GSK Award for Research Excellence 2017 for his role in transforming the lives of patients with chronic myeloid leukaemia (CML) through pioneering the use of tyrosine kinase inhibitors (TKIs).

“Even up to the 1990s CML was a fatal disease with a median survival rate of three to four years. We began this research in 1999 with the goal of extending this survival time by using TKIs, and when the results were dramatically effective right from the start we incrementally increased our goals. Most patients now have excellent control of their disease and some have achieved treatment free cancer remission,” explained Prof Hughes, Cancer Theme Leader at the South Australian Health and Medical Research Institute (SAHMRI).

Prof Hughes’ team demonstrated that molecular monitoring of a patient’s response to TKI therapy allows it to be customised for them to improve their outcome, including the chance of durable remissions while minimising the risks of drug-resistance and disease progression. In Australia, more than 2,500 CML patients are currently receiving treatment with TKIs, and over 300 patients begin treatment with them each year after their CML diagnosis.

“The original clinical trials into the first generation of TKIs gave us unique insights into the dynamics of response and the mechanism of drug resistance. This drove the development of second and third generation TKIs which have further improved outcomes for patients,” said Prof Hughes

He explained that his team were brought into the global trial after developing a sensitive

and accurate molecular assay that became a critical component of the study. This assay has subsequently become the international reference assay for CML monitoring, an achievement made possible through a collaboration with pathologists and scientists at SA Pathology and the Royal Adelaide Hospital.

“This assay allowed us to measure each patient’s tempo of response including if they were sensitive to the TKIs or resistant to them. It represented the value of cutting edge pathology delivering globally relevant expertise to facilitate pioneering drug therapy.”

Prof Hughes said traditional pathology tests for CML, such as a full blood count and bone marrow biopsy, are still used to diagnose and assess CML patients, but these are now augmented with next generation molecular tests to characterise each patient’s disease profile.

Professor Hughes and his team at SAHMRI are now focussed on optimising treatment response and disease management to further improve patient outcomes. The $80,000 prize money from the GSK Award will help support a Leukaemia Fellow to work with Prof Hughes on further research into CML.

Professor Hughes is also a Beat Cancer Professor at the University of Adelaide, and a Haematologist at SA Pathology and the Royal Adelaide Hospital.

A bit more about CML and TKIs

CML is a type of cancer that affects the blood and bone marrow. It usually develops slowly, and is typically picked up during a routine blood test. Most people with CML have a specific genetic abnormality in their blood that causes an enzyme called tyrosine kinase to be produced, and this leads them to develop CML.

Tyrosine kinase inhibitors (TKIs) are a class of chemotherapy drug that inhibits or blocks tyrosine kinase.

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