Will a Nobel be awarded to someone in sports medicine or science?

By Dr J

It is a time for great celebration that we have just had two Australian medical doctors awarded the Nobel Prize for medicine and physiology (Robin Warren and Barry Marshall). Their discovery was that the bacterium Helicobacter pylori is in fact the major cause of stomach ulcers which can now be successfully treated with antibiotics. Those of us in sports medicine should greet this award with a similar level of elation that we felt, for example, when Cathy Freeman won the 400 m at the Sydney Olympics. Admittedly the Freeman gold might have warranted more (appropriately so) media reaction as the event lasted less than a minute but there are more than one hundred Australian Nobel Gold medalists yet only a dozen Australian Nobel Prize winners.

The only Australian Nobel Prize winners in medicine and physiology are: - Warren and Marshall in 2005 for their discovery of Helicobacter pylori, - Peter Doherty (along with Rolf Zinkernagel, a Swiss working in Australia) in 1996 for their discoveries in immunology, - John Eccles along with Hodgkin and Huxley in the UK in 1953 for his discoveries regarding nerve cells, - Frank Macfarlane Burnett (along with Peter Medawar) in 1950 for his discoveries in immunology, and - Howard Florey along with Fleming and Chain of the UK in 1945 for the discovery of penicillin.

In terms of the impact on improving the human condition, the discovery of penicillin (which was the biggest ever breakthrough in the field of antibiotics) would rank as highly as any of the Nobel prizes awarded for medicine. Alexander Fleming is credited with discovering that the mould penicillin could inhibit the growth of bacteria, but the Australian Sir Howard Florey (who has an institute named after him in Melbourne) is considered to have been most responsible for introducing the antibiotic penicillin to clinical practice. Warren and Marshall deserve the highest of our praises for making a discovery which vastly improves a common disease in clinical medicine, for being prepared to challenge existing dogma about the causation of peptic ulcer and, locally, for conducting all of their work within Australia (in the city of Perth). You should take any chance you get to read about the story of Warren and Marshall, including the free text in the Christmas edition of the Med J Aust at http://www.mja.com.au/public/issues/183_11_051205/vard10000.htm

With respect to the field of sports medicine, a recent Nobel award has major relevance (Paul Lauterbur and Peter Mansfield in 2003 for the discovery of magnetic resonance imaging). In 1993 three Americans (Buchgott, Igaruo and Murad) shared the Nobel Prize for medicine for their discoveries with respect to the role of nitric oxide in the cardiovascular system. Their work has probably inspired that of George Murrell and Justin Paoloni who have discovered that nitrates can improve the clinical outcome of tendinopathy, which may one day be worthy of a major international award in the field sports medicine. George Murrell has just won the FE Johnson Memorial Fellowship of the NSW Sporting Injuries Committee for 2005, whereas Justin Paoloni has already won the David Garland Memorial Scholarship for this work.

There was an IOC Olympic Prize in sports science and medicine which was awarded every two years between 1996 and 2002, but not awarded in 2004 because of the withdrawal of sponsorship from the Pfizer company. This award, if it is resurrected, may possibly be seen as the “Nobel” equivalent in sports science and medicine. Yet it would only be an equivalent for as long as it was considered impossible for a sports medicine researcher actually to win a real Nobel Prize.

Those small-minded folk who think that I have tenuous grip on reality would probably suggest to meet up sports medicine experts should stick to the task of proving to the Australian Government that we actually exist as a distinct and medical discipline. Everyone starts worrying about winning the Nobel Prize for a sports medicine study. Everyone wants to score sport medicine with sports injuries, if we start to think along the sports and exercise medicine paradigm, perhaps it won’t be long before we see sport medicine Nobel laureates. Researchers such as Jeremy Morris, Ralph Paffringer and Stephen Blair must surely be close to that elusive Nobel for their work proving that exercise can prevent heart disease and cancer.

If we switch back to Marshall and Warren, there are lessons for us to learn. Firstly, that major international award in the field sports medicine. George Murrell has

which diseases in sports medicine might be caused by infection? The number one candidate, in my view, would have to be ‘chondral degeneration’ in the knee joint, in particular. How many times do you see a patient go in for a knee arthroscopy for a meniscal tear, and in which the surgeon also finds grade 1-2 chondral degeneration in the joint, followed by a rapid deterioration after the arthroscopy? A year later another arthroscopy is performed and this time the patient has grade 4 chondral damage (fracture/steaughter) and a disability that will last a lifetime. Of course, the ruling dogma is that the “early” arthroscopic surgery is the first in the arthroscopy constituted a joint “weakness” that after further “mechanical loading” deteriorated to frank arthritis. Yes, I believe that early wear of the knee joint can later become advanced wear, but in the average patient this normally takes 20-30 years. How come it can happen to some poor victims in under 12 months when they don’t run a single step in Type-II diabetes? That might involve an infectious agent, then it would still be important to push the public health message about exercise and good nutrition. In a society where there is a high population of overweight and obese people, if an infectious agent can cause diabetes in these people, from an evolutionary perspective it can afford to be a far nastier agent, as the potential pool of victims is huge (and from an infectious disease point of view, it won’t affect its spread if a few victims die of the disease). In a society (unfortunately now is a hypothetical one) where everyone exercised regularly and ate moderate amounts of food, if you were a diabetes-causing virus you would quickly mutate to a more benign form. It would be very costly to kill your victims due to the difficulty in finding replacement victims (given that the virus might need a high-fat host environment in which to live). Therefore, even if there are infectious agents that cause Type-II diabetes, we simply are not yet to discover, we can limit their spread by increasing rates of exercise and improving nutrition.
The new Australian Sports Anti-Doping Authority

Adam Firth

The year 2004-05 has been a landmark in a Australia's anti-doping effort, Chairperson Brian Sando says in the latest - and probably the last - annual report of ASADA before the Government turns it into ASADA, the Australian Sports Anti-Doping Authority.

Acting Chief Executive Kim Terrell points out in the report that the establishment of ASADA, implementing one of the biggest testing programs ever undertaken in Australia and the work on the 2006 Commonwealth Games will be high priorities for 2005-06. For example, the Agency will conduct more than 7,000 drug tests in 2005-06 - on average, that's at 19 athletes tested every day of the year.

Sports Health here publishes extracts from the report on issues of special interest to its readers, such as no advance notice testing, trends in notifiable events and the prospects for an online athlete whereabouts system.

The great thing about being involved in science is the thrill of watching our knowledge base evolve. Fifteen years ago the internet didn't exist and, 25 years ago, no one suspected that Helicobacter pylori was a common cause of peptic ulcer. If you are working in sports and exercise medicine, you are working in an area which, despite its snubbing by the mainstream medical profession, is one which is critical to the advancement of human health. Maybe we won't see a Nobel Prize-winning discovery in sports medicine in our lifetime, but maybe we will. What is assured is that there will be new and successful ways to prevent and manage major sports injuries that are discovered in our lifetime, and that some of them will be discovered in this wonderful country of ours.

On 25 June 2005 the Australian Government announced its intention to establish the Australian Sports Anti-Doping Authority (ASADA), which from early this year will take over from the Australian Sports Drug Agency (ASADA) as Australia's NADO under the World Anti-Doping Code (WADC), but with significant additional functions to ASADA in the fight against doping in Australian sport. No doubt ASADA is motivated at least in part by the Australian cycling controversies of the past two years and the experiences in the United States with the BALCO-scandal. Its enabling rules and regulations are not yet finalised and accordingly this article can only make comment on some features that have been announced and in relation to such a body generally.

ASADA's powers

It has been confirmed that ASADA will replace ASADA in handling the responsibilities of sample collection and testing, and education and advocacy. It will also play a role in policy development relevant to sports doping, as most significantly will act as the investigator and prosecutor of all allegations of anti-doping rule violations relating to sports whose governing bodies in Australia sign on to use ASADA for such purposes. It will be a condition of government funding and other support that sports submit all their anti-doping operations to ASADA, and ensure that their members still cooperate fully with ASADA in the performance of its functions. It will also be a requirement that the sport accepts any adverse finding of ASADA against any of its athletes (or other persons within the sport's jurisdiction), ensures that information notices are served on such persons and enforces penalties imposed in accordance with the sport's anti-doping rules. The Government has used its powers to control good effect in forcing all Australian sports to sign on to the WADC and it can be expected that it will pursue use of ASADA with the same intent.

More specifically, in addition to ASADA's existing powers, ASADA will have:

• power to conduct investigations on the basis of information acquired from its drug testing and other activities, or where it has received information from any other person, or on its own initiative;

• power to receive, use and disclose (where appropriate) information from Australian Customs Service or other law enforcement agencies who are investigating possible anti-doping policy breach;

• power to present the prosecution case before a tribunal (whether or not ASADA investigated the case).

The most significant new features of ASADA are in its investigatory and prosecutorial functions. An independent, government-funded body fulfilling such a role has been sought by many sports organisations in this country for some time as the burden of anti-doping policy enforcement increases. The experiences in Australia and around the world have shown the value of increased uncertainties that have in the past been seen in anti-doping matters in Australia and around the world.

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