



OBITUARIES

Jeffrey Lima Hayes O’Riordan

Doctor and researcher whose bone biology research prompted the nickname “Professor PTH”

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London



Physician scientist Jeffrey O’Riordan was a pioneer of the study of hormonal control of calcium and bone biology. He became influential as an investigator, doctor, and teacher. His death, say colleagues, marks the “end of an era” for the UK bone research community and the many researchers who trained with him during a 30 year career at the Middlesex Hospital in London.

O’Riordan’s work spanned the biology of parathyroid hormone (PTH), calcitonin and vitamin D metabolism, and abnormalities of these in bone diseases and genetic abnormalities.

He established a “world class” research programme in PTH, vitamin D, and mineral metabolism, according to the American Society for Bone and Mineral Research, of which he was a long time member. The society said, “His contributions to human disease were especially notable. He was an innovator in clinical assay development, which enabled definitive studies of the metabolic disturbances in patients with parathyroid disease and

dysregulated vitamin D metabolism. His later work was instrumental in identifying PHEX gene mutations in x linked hypophosphatemic rickets.”

Many of those trained by O’Riordan, or “Professor PTH” as he was often known, went on to become international leaders in bone and mineral research themselves.

Iconic ward rounds

Rajesh Thakker, who worked with him at the Middlesex, says O’Riordan was “ahead of his time” in the way he pursued excellence in clinical care, gathering doctors and research fellows together at patients’ bedsides during Saturday morning ward rounds. “They were an opportunity to discuss clinical problems and to teach but also to figure out where our knowledge ended and where research began,” says Thakker, who is May professor of medicine at Oxford University’s Radcliffe department of clinical medicine. “Nowadays, we talk about translational medicine and personalised medicine. Jeffrey practised those things in the 1980s before the terms were invented. It was bringing research to the bedside and taking the bedside back to the bench.”

O’Riordan was born in Newport, Wales in 1931 to a Welsh mother and an Irish father, a general practitioner. He studied at Oxford University, started work at the Middlesex in 1954, and completed his medical training there.

In 1964 he began a stint in the US at the National Institutes of Health in Maryland, working with Gerald Aurbach, whose studies were opening up the specialism of parathyroid hormone research. This experience, say colleagues, had a big effect on his career in preparing him to apply basic science to clinical questions in calcium and bone metabolism, and helping to form his own skills as a mentor.

PTH

O’Riordan established procedures for isolating bovine, porcine, and human PTH from glandular material. These provided the foundations for developing PTH assays, determining the peptide and DNA sequences of PTH, which ultimately resulted in the synthesis of recombinant human PTH that is used now for the treatment of osteoporosis.

In 1966, he returned to the Middlesex and established the calcium laboratory, introducing the latest concepts and methods to investigate physiology and disease to UK endocrinology. He developed the earliest high quality, specific, and sensitive assays for PTH, including the first immunoradiometric assay, and introduced the approach of localising parathyroid tumours by obtaining multiple samples for assay by venous catheterisation. “Over the following decades, he was responsible for much of what developed in understanding clinical aspects of hyperparathyroidism and its management in the UK,” says Thakker.

Vitamin D

O’Riordan’s other major research focus was vitamin D, including genetic abnormalities in the vitamin D pathway as a cause of disease. Thakker says, “Methods of gene analysis had begun to be developed at about this time, and Jeffrey knew that among his patients were many who would make it possible for him to bring clinical problems to the laboratory in the search for solutions.”

O’Riordan also carried out pioneering work on a condition known as pseudohypoparathyroidism and produced a “landmark” paper on sarcoidosis among his 175 manuscripts. This paper identified the cause of hypercalcaemia as overactivity of an enzyme that makes active vitamin D and that its activity could be suppressed by glucocorticoids, a class of steroid hormones.¹

He maintained his interest in vitamin D long into his retirement and wrote an entertaining account of the history of rickets.²

O’Riordan, say friends, was dedicated to his patients—many of whom struggled to find treatment for their disorders—and modest about his achievements.

Teaching abroad

Widely acclaimed as a teacher, O’Riordan once said he learnt to appreciate the needs of students from developing countries while serving in the Cameroons with the Royal Army Medical Corps in 1962. As the troops were so healthy, he was allowed to spend much time caring for local hospital patients and relating his first world medicine to that of the local healers. In a letter

to the *Lancet* describing his experiences, O’Riordan wrote, “Doctors who go out to Africa for a short tour should do so in a spirit of humility, realising their ignorance of the diseases and the people they will meet.”

He collaborated widely and generously. His research in the 1980s and 90s was truly multidisciplinary, spanning the genetics of phosphate homeostasis, the molecular regulation of PTH synthesis and secretion, and the immunobiology of vitamin D.

Colleagues say O’Riordan’s warmth and good humour showed in the way he encouraged “active socialising as an important part of research training.”

He remained intensely interested in, and quietly proud of, the career achievements of his trainees, with whom he maintained lifelong friendships.

In a memorial post, Martin Hewison, professor of molecular endocrinology at Birmingham University, said O’Riordan—his postdoctoral mentor and colleague for nine years at the Middlesex—had a huge impact on his life and career. “He introduced me to vitamin D, and he was never afraid to take risks with projects. Perhaps more importantly, he taught his team members the value of the research ‘family,’” wrote Hewison.

O’Riordan kept in touch with patients too, and when he retired held a party for them, encouraging them to introduce themselves as having high or low calcium levels.

Fond of sailing, he explored the seas around Ireland, the UK, and beyond.

He was predeceased by his son Mark (age 16) and leaves his wife, Sally; four children; and eight grandchildren.

Biography

Emeritus professor of metabolic medicine (b 1931; q 1957; DM, FRCP Lond), died from bowel obstruction on 9 October 2017

- 1 SandlerLMWinearlsCGFraherLJClemensTSLSmithRO’RiordanJL. Studies of the hypercalcaemia of sarcoidosis: effect of steroids and exogenous vitamin D3 on the circulating concentrations of 1,25-dihydroxy vitamin D3. *Q J Med*1984;53:165-80.6087399
- 2 O’RiordanJL. Rickets in the 17th century. *J Bone Miner Res*2006;21:1506-10. doi:10.1359/jbmr.060703.16995805

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