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This article celebrates the career of Dr Henry Lynch and his contributions to cancer genetics through his extensive research, clinical practice and his passion for personalising care by using a patient's genetic profile to determine management and treatment. Dr Lynch's contributions were momentous and continue to have relevance to medical practice, in particular in the fields of clinical genetics, medical oncology and gastroenterology.

Key words: cancer genetics, familial cancer, lynch syndrome

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Celebrating the career and contributions of Dr Henry T Lynch (1928-2019)

(i) Text

Dr Henry T Lynch was an academic, physician and geneticist often referred to as ‘the Father of Cancer Genetics’ for his revolutionising work in defining cancer syndromes, establishing the first hereditary cancer registry and the first Hereditary Cancer Centre among many other achievements. Dr Lynch’s research and practice laid the foundation for cancer genetics practice and research.

Dr Lynch started his career in medicine after a period in the United States Navy and as a professional boxer. He studied an undergraduate degree followed by a Master’s degree in clinical psychology before undertaking a PhD in human genetics at the University of Texas. He went on to complete his medical degree from the University of Texas.

Following completion of internship and residency, Dr Lynch spent the majority of his career at the Creighton University School of Medicine in Omaha, Nebraska. It is here that Dr Lynch collated data on family pedigrees and established the Cancer Genetics Registry identifying the link between family history of cancer and risk to future generations. Accompanying this registry was the foundation of the Hereditary Cancer Prevention Clinic used a service for screening, prevention and surveillance.

RESEARCH

Dr Lynch’s work built on the work of Aldred Warthin who reported on trends of cancer within the family in his 1912 and 1925 publications [1].

In 1971, in his manuscript “*Cancer Family ‘G’ Revisited*” published in *Cancer*, Dr Lynch famously revealed his work on the autosomal dominant pattern of inheritance for syndrome comprising of colon, uterus and stomach terming it Cancer Family Syndrome [2]. In comparison with Familial Adenomatous Polyposis (FAP) which was a genetic condition immediately recognisable on colonoscopy, the Cancer Family Syndrome described by Lynch was characterised by a paucity of polyps. However, the frequency of Cancer Family Syndrome in the population evidenced in the database of affected families Lynch had captured in his registry was considerably higher than FAP which was the only recognised familial gastrointestinal syndrome at the time [3, 4].

Lynch's landmark 1971 publication was preceded by several publications including '*Hereditary Factors in cancer; Study of two large mid-western kindreds*' published in Archives of Internal Medicine in 1966, '*Heredity and adenocarcinoma of the colon*' published in Gastroenterology in 1967 and '*Hereditary and multiple primary malignant neoplasms: six cancer families*' published in American Journal of Medical Sciences in 1967 [5, 6, 7].

Dr Lynch was amongst the committee of researchers who created the Amsterdam Criteria; a clinical criterion used to define HNPCC and outline the surveillance measures required in patients meeting the criteria [4; 8]. Along with his colleague's Dr Lynch published the guidelines in the article "*The International Collaborative Group on Hereditary Non-Polyposis Colorectal Cancer (ICG-HNPCC)*" in the journal Disease of the Colon and rectum in 1991 [9]. A later revision in 1999 ensured inclusion of HNPCC-related extracolonic cancers such as endometrial, small bowel, ureter and renal cancers [4].

When the MSH2 gene mutation responsible for the phenotype described by Lynch was identified several decades after Lynch's initial description it was referred to as Hereditary nonpolyposis colorectal cancer (HNPCC) or colloquially as Lynch Syndrome in recognition of Dr Lynch's work describing the clinical condition [3]. This eponymous condition is among Dr Lynch's most recognisable contributions to clinical genetics. The significance of the ability to match genetic locus to clinical syndrome was recognised by Dr Lynch who published on the role of genetic testing for risk assessment, screening of relatives and initiation of cancer surveillance and even prophylactic surgery in gene positive individuals [10, 11]

Dr Lynch's influence is also marked in familial breast and ovarian cancer syndromes pre-dating the discover of BRCA1 and BRCA2 genes. He contributed to and authored multiple publications on the topic including articles on diagnosis, counselling and management [12-15].

AWARDS

Dr Lynch's research attracted multiple accolades and awards. Amongst these included the Medal of Honor for Clinical Research, American Cancer Society 1997, Lifetime Achievement Award in Inherited Pancreatic Disease, International Association of Pancreatology 2001, The Jacqueline Seroussi Annual Award for Cancer Research, Jacqueline Seroussi Memorial Foundation, Tel Aviv University 2003, Honorary Fellowship American College of Physicians 2016 and the Luminary Award from the Ruesch Centre for the Cure of Gastrointestinal Cancers 2017 [16].

LEGACY

Dr Lynch leaves a profound legacy in cancer research, clinical practice and preventative medicine. Dr Lynch serves as a role model for clinician scientists with his research having implications beyond the scope of clinical genetics affecting the practice of primary care specialists, oncologists, physicians and surgeons. Dr Lynch's directly helped many families through his work and his legacy continues to affect millions of families by providing clarity by diagnosis and prolonging life expectancy through surveillance and optimal management.

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CELEBRATING THE CAREER AND CONTRIBUTIONS

OF DR HENRY T LYNCH (1928-2019)

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‘This work is not under active consideration for publication, has not been accepted for publication, nor has it been published, in full or in part (except in abstract form). I confirm that the study has been approved by (name of committee), an institutional ethics committee.’

A handwritten signature in black ink, appearing to be 'G. Butel-Simoes', written in a cursive style.

Grace Butel-Simoes

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