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Commentary

Reflecting on Thirty Years of Experience With Active Surveillance for Papillary Thyroid Microcarcinoma

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Abbreviation: PTMC, papillary thyroid microcarcinoma.

This year marks the 30th anniversary of the implementation of active surveillance as an alternative management option for patients with low-risk papillary thyroid microcarcinoma (PTMC) initiated by Akira Miyauchi in 1993 at the Kuma Hospital in Kobe, Japan. Recently, Akira Miyauchi and Yasuhiro Ito have provided an invited perspective summarizing their extensive experience, suggesting recommendations for implementation, and proposing active surveillance to be the best initial management option for patients with PTMC [1].

Since the authors' landmark 2010 publication, active surveillance as an option for patients with PTMC has been incorporated into various consensus guidelines (including the 2015 American Thyroid Association and 2020 American Association of Endocrine Surgeons guidelines) [2]. However, barriers to adoption of active surveillance persist. A recent survey analyzing the perception of active surveillance among endocrinologists and surgeons found that the majority of respondents (76%) would choose surgery if they were diagnosed with PTMC, with 52% having reservations regarding active surveillance, citing barriers such as a lack of both guideline familiarity and protocols supporting this approach [3]. Therefore, this is a timely review by Miyauchi and Ito as the instigators of and experts on active surveillance. They summarized their protocol, reviewed eligibility criteria (specifically critical anatomic, pathophysiologic, and patient-specific features warranting exclusion) and provided recommendations for clinical implementation.

The authors showed favorable outcomes of active surveillance compared with immediate surgery. The independent predictor for disease progression was age <40; predictors for tumor enlargement were elevated thyrotropin and index size ≥9 mm, and for subsequent nodal metastasis the predictor was male gender. The authors proposed thyroid hormone suppression therapy to potentially mitigate the risk of disease progression in patients younger than 40.

Active surveillance is further supported by the authors' comparative analysis of upfront surgery, which incurred significant rates of transient and permanent complications (8.7% and 0.9% for vocal cord paresis, 20.8% and 1.4% for hypoparathyroidism). Rates of locoregional recurrence and economic burden were also higher in patients who underwent upfront surgery compared with active surveillance. Previous studies have shown higher patient disutility (ie, patient-specific quality of life decrement) and upfront costs associated with surgery, but these need to be balanced with the long-term financial burden of surveillance and monitoring [4, 5]. Further work is needed to clarify the financial implications of the various management strategies, and to confirm whether active surveillance remains a viable option in other countries and regions with different health care systems and financing.

Miyauchi and Ito emphasized the importance of appropriate selection of tumors and patients. Successful adaptation of active surveillance depends on expertise in performing ultrasound and interpreting the clinical implications of its findings. The availability of expert sonographers may be the main limiting factor in adopting active surveillance, which requires intensive semiannual evaluation. A recent survey in a combined cohort of 300 endocrinologists, endocrine surgeons, and otolaryngologists found that only 27% of respondents personally perform neck ultrasound, with only 20% highly confident in their capabilities [6]. There may also be additional regional and cultural challenges, such as a patient's body habitus, or poor compliance for required follow-up, that further deter successful implementation of active surveillance. Additionally, establishing the provider in the multidisciplinary team responsible for active surveillance may be challenging in health care systems outside of Japan. Reimbursement and revenue models may dissuade surgeons from assuming responsibility for active surveillance since most of these patients will not need a thyroid operation. Shortages of endocrinologists with increased demand exacerbated by attrition, with outpatient clinic appointment waiting times averaging 5 months, may also preclude endocrinologists from assuming responsibility [7, 8]. Changing care delivery system and incentives will be needed to successfully implement active surveillance protocols in the United States.

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Finally, clinical heterogeneity and methodological limitations in most studies of active surveillance introduce confounding variables and biases that may also preclude acceptance [3, 5]. While a randomized controlled trial may alleviate these concerns, such a trial may prove challenging, because the fundamental features essential to successful active surveillance must be preserved, with carefully selected patients and physicians.

Despite these limitations, Miyauchi and Ito's findings support the current trend to a less-invasive alternative for patients with PTMC. They demonstrated that in the carefully selected, appropriately compliant, and highly motivated patient, with an appropriately implemented protocol, active surveillance is a safe and desirable option for patients with PTMC. The authors should be congratulated on their work and commended for their contributions to the field of managing patients with low risk PTC.

Disclosures

The authors report no proprietary or commercial interest in any product mentioned or concept discussed in this article. Quan-Yang Duh is an editor for the Journal of the Endocrine Society.

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