Many recurrent testicular tumours 'missed' by current diagnostic markers

March 27 2019, by Nihr Community Healthcare Medtech Ivd Co-Operative

There is insufficient evidence to underpin the use of tumour markers to detect the recurrence of testicular cancer in patients who have undergone surgery for an initial tumour, finds research from Oxford University published in the journal *Cancer Epidemiology*.

The incidence of testicular cancer is increasing, with 7 in 100,000 men diagnosed with the condition each year in the UK, most of whom are aged under 35.

While testicular cancer is highly curable with over 98% of men living for more than 10 years, the number of relatively young survivors means that ongoing surveillance for recurrent disease is particularly important.

To assess the performance of biomarkers in diagnostic tests for testicular tumours, researchers funded by the NIHR Community Healthcare MedTech and IVD Cooperative systematically reviewed data from more than 1200 patients collected by nine different research studies.

These studies assessed three biomarkers – blood α-fetoprotein (AFP), human chorionic gonadotropin (HCG) and lactate dehydrogenase (LDH) – that are currently cited in European guidelines for surveillance for testicular cancer recurrence.

The results of the included studies were mixed. While two of the markers (AFP and HCG) showed some diagnostic potential, many

recurrent tumours would be missed using these markers alone.

The study highlights the importance of using diagnostic strategies that also incorporate clinical examination and imaging, rather than over-relying on biomarker results.

Lead author, Dr. Brian Nicholson, a clinical researcher at the Nuffield Department of Primary Care Health Sciences, University of Oxford, said: "There's a lot of debate about how to make sure patients are followed up safely after a treatment for cancer to make sure that cancer is detected as soon as possible if it comes back. Important questions include what tests to do, how often they should be taken, and importantly for us whether they could safely be done in general practice.

"What this review tells us is that there is great uncertainty over the current best use of blood tests when following up patients who have survived testicular cancer, so it would be difficult to give GPs clear guidance. There are many patients being followed up right now in the UK and abroad – we should find smart ways to combine their data to inform best practice."

Dr. Thomas Fanshawe, a senior medical statistician at the University of Oxford, said: "This review demonstrates how difficult it can be to perform rigorous evaluations of diagnostic biomarkers. Although not intended as a replacement for clinical experience, our results suggest there is more work to be done to decide how tumour markers can be best used in surveillance strategies for detecting recurrent disease."

Many of the studies included in the review were small, and some studies concentrated on just one tumour type, which makes the results difficult to generalise.

The researchers report that there is little evidence to support the

threshold values currently used to signify whether a biomarker is elevated above the normal range. For these reasons, the review authors assessed the quality of several of the studies as low.

More information: Nicholson BD, Jones NR, Protheroe A, Joseph J, Roberts NW, Van den Bruel A, Fanshawe TR. The diagnostic performance of current tumor markers in surveillance for recurrent testicular cancer: a diagnostic test accuracy systematic review. *Cancer Epidemiology* 2019; 59: 15-21. www.sciencedirect.com/science/ … ii/S1877782118301346

Provided by Nuffield Department of Primary Care Health Sciences, University of Oxford