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Reshaping the diagnostic pathways for investigation of haematuria during and after the COVID-19 pandemic: Diagnostic accuracy of strategies for the detection of bladder cancer from the IDENTIFY cohort study

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Background: Haematuria often requires investigation with an imaging test and flexible cystoscopy to rule out urinary tract cancers. With a reduction in diagnostic services due to the COVID-19 pandemic there is a risk of compromise in the care of patients referred with haematuria. We aimed to provide a pragmatic strategy that optimises the use of scarce resources by reducing patient visits to hospital and allocating the appropriate diagnostic tests according to risk of bladder cancer.

Methods: The IDENTIFY study was an international, prospective, multicentre cohort study of over 11,000 patients referred to secondary care for investigation of newly suspected urinary tract cancer. Patients underwent cystoscopy, imaging tests, urine cytology and transurethral resection of bladder tumour (TURBT), where indicated. We developed strategies using combinations of imaging and cytology as triage tests to flexible cystoscopy. These strategies aimed to maximise cancer detection within a pragmatic pathway in a resource-limited environment.

Findings: 8112 patients (74.4%) received an ultrasound or a CT urogram, with or without cytology. 5737 (70.7%) patients had visible haematuria (VH) and 2375 (29.3%) had non-visible haematuria (NVH). Amongst all patients, 1474 (18.2%) had bladder cancer; 1333 (23.2%) in VH group and 141 (5.94%) in NVH group. Diagnostic test performance was used to determine optimal age cut-offs for each proposed strategy. We recommended proceeding directly to TURBT for patients of any age with positive triage tests for cancer. Patients with negative triage tests under 35-years-old with VH, or under 50-years-old with NVH can safely be discharged without undergoing flexible cystoscopy. The remaining patients may undergo flexible cystoscopy, with a greater priority for older patients (threshold of 60-years-old with VH, or 70-years-old with NVH) to capture high risk bladder cancer.

Interpretation: We suggest diagnostic strategies in patients with haematuria, which focus on detection of bladder cancer, whilst reducing the burden to healthcare services in a resource-limited setting.