

Global variation in cancer detection rates in patients referred to secondary care with haematuria – do some over investigate?

Results from the IDENTIFY collaborative study.

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Introduction/ Aim

The aim of this study was to determine the prevalence of urinary tract cancer in secondary care and explore differences in prevalence between countries.

Methods

IDENTIFY was a prospective international cohort study. Patients referred to secondary care with symptoms suggestive of urinary tract cancer were included. A mixed model was used to adjust* prevalence rates for confounding factors. The Globocan resource was used to determine country population prevalence.

*mixed model fixed factors: Age, haematuria type, smoking, gender. Randoms factors: Country, hospital.

Results

Data about 10873 patients (110 hospitals, 25 countries) were included. Table 1 demonstrates adjusted* prevalence rates in all patients and those with visible haematuria (VH) or non-visible haematuria (NVH). The rate of urinary tract cancer detected in secondary care varied between countries from 4.8% to 72% (median 26%, IQR 11.9-42.0) (Figure 1). Countries that investigated less NVH, and more VH tended to have higher cancer detection rates, although there was still considerable variation between countries in cancer detection rates even within visible or non-visible haematuria patients (Figure 2). The underlying population prevalence of bladder cancer did not correlate with the bladder cancer detection rate in secondary care in that country. Higher "healthcare access and quality index" score was significantly correlated with lower cancer detection rates in that country ($r=0.51$ $p=0.008$) (Figure 3). Countries with lower bladder cancer detection rates (i.e. performed more negative investigations) did not have a lower proportion of "high risk" tumours (bladder cancer G3T_a, CIS or muscle invasive) ($r=0.32$, $p=0.13$) (Figure 4).

Figure 1: Wide variation in cancer detection rate and proportion of cases investigated for non-visible haematuria.

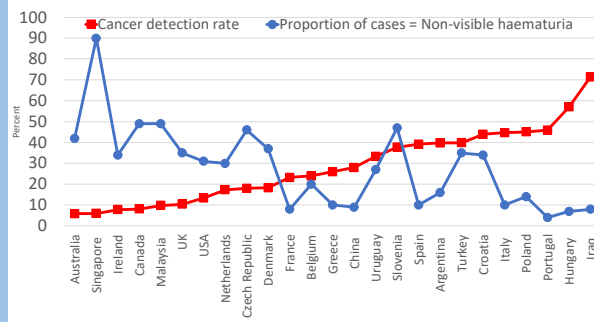


Figure 2: Variation persists even within visible and non-visible haematuria groups

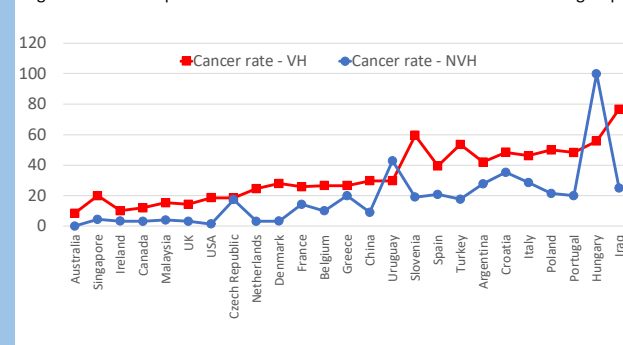


Figure 3: Better healthcare access = more negative investigations

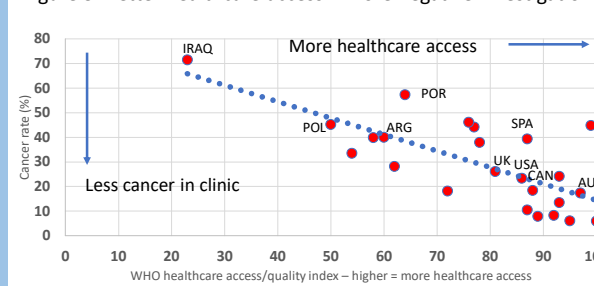


Figure 4: Doing more negative investigations not correlated with lower rates of "high risk" bladder cancer

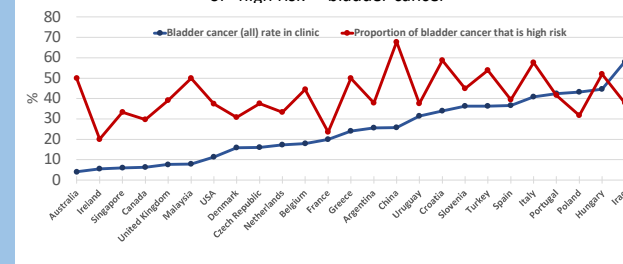


Table 1.	N (%)	Adjusted* prevalence
All	2257/10896 (20.7)	26.2 (18.6 to 35.5)
Visible haematuria	1853/7130 (26.0)	32.1 (23.7 to 41.9)
Non-visible haematuria	201/3143 (6.4)	11.3 (6.52 to 14.0)

Conclusion

There is wide variation in cancer detection rate in secondary care which is independent of the underlying population prevalence. Performing more negative investigations was not associated with a lower detection of high-risk bladder cancer at presentation. These data suggest differences in patient selection for investigation and resultant impact on diagnostic yield. These data support the case for a risk-based approach to haematuria investigation.

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