

Time to diagnosis in symptomatic cancer – does it have an effect on clinical outcomes?

Systematic review and meta-analysis

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Background

It is generally assumed that timely diagnosis of cancer leads to earlier stage diagnosis and improved survival. Whilst there is good evidence of this in breast and colorectal cancers, observational studies in many other cancers appear to report no association or an inverse relationship between longer diagnostic times and better outcomes.

Methods

This review was conducted adhering to principles of good practice for systematic reviews. Cancer-specific search strategies were adapted for multiple databases which were searched from inception.

INCLUSION CRITERIA:

- Studies that examined symptomatic patients presenting with primary cancers.
- Studies which analysed the impact of some part of the diagnostic time on any health-related outcome (survival, diagnostic stage, treatment assignment after diagnosis, quality of life and psychological outcomes)
- Any type of study design was considered

Meta-analysis was undertaken in cases where there were three or more studies reporting a similar outcome for a particular cancer site.

Results

There was huge diversity in the definitions of time-points and intervals in the diagnostic process. Many of the studies were of poor quality, with multiple sources of bias and confounding. The design and analyses of almost all of the included studies did not account for the minority of patients with aggressive disease who present quickly, yet do badly.

Space prevents full reporting here, so only brief headline findings are reported for melanoma, and gynaecological and upper gastrointestinal cancers.

Melanoma

15 studies were included, of which 5 reported the effect of symptom duration on tumour thickness; the findings from these were ambiguous. 3 of these were entered into a meta-analysis; the pooled estimate showed no evidence of a meaningful association.

Gynaecological

For cervical, 6 studies were included; 4 reported no association, and 2 reported a positive association between 'patient delay' and advanced stage. For ovarian, 8 studies were included; no evidence of associations were reported. For endometrial, 9 studies were included; 3 showed longer symptom duration was associated with advanced disease, and one population-based study suggested an inverse association between post-presentation interval and survival.

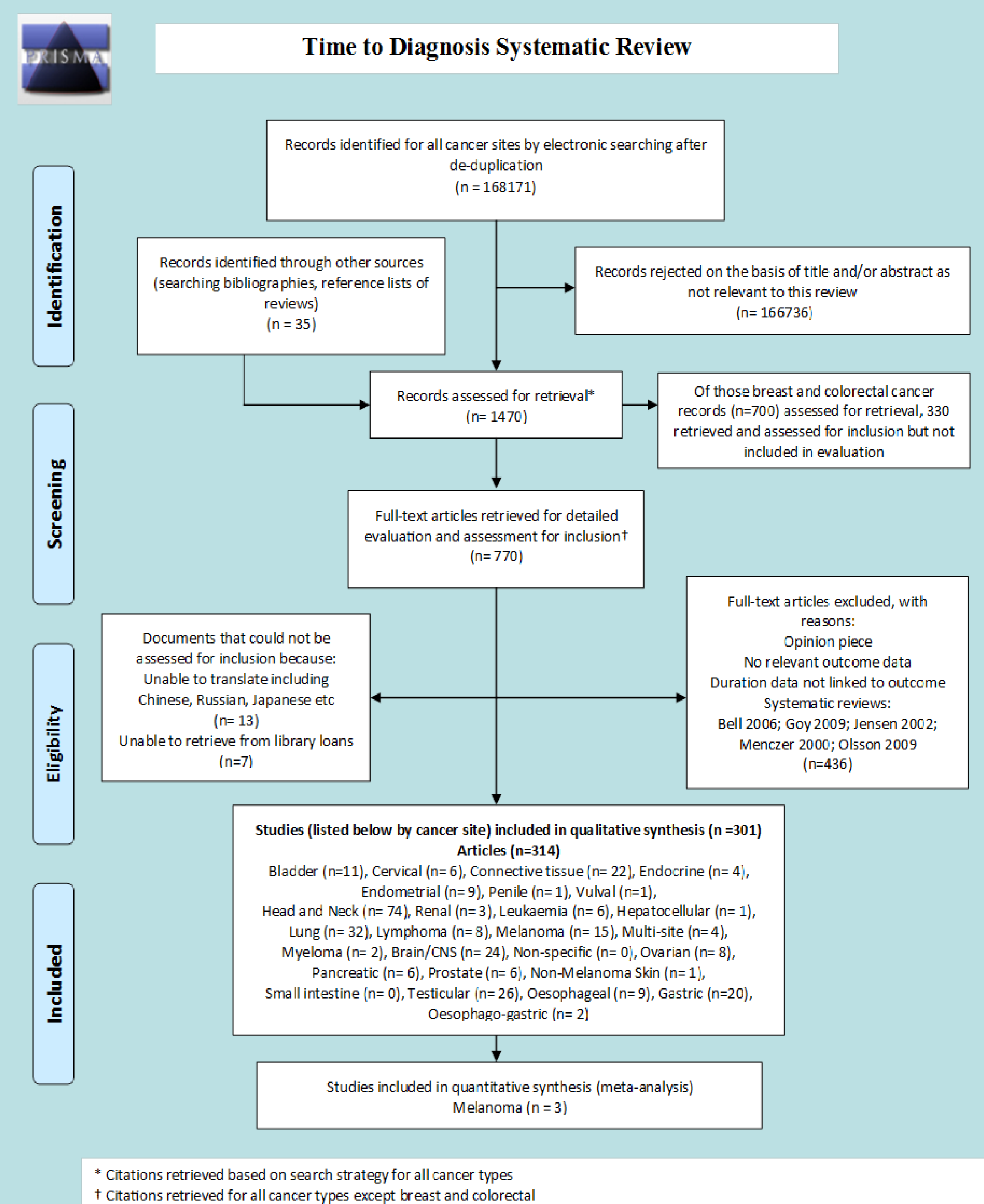
Upper gastrointestinal cancers

22 studies were included. There was some evidence in gastric cancer that longer symptom duration was associated with better survival, although overall the findings were ambiguous; there were no convincing data that shorter symptom durations were associated with better outcomes. No meta-analyses were possible.

Aim

To undertake a systematic review to determine the association between diagnostic time (from first symptom to initiation of treatment) in symptomatic cancers and clinically relevant outcomes. We covered all cancers except breast and colorectal.

PRISMA Flow Chart



Discussion

The differences between different cancers probably reflects the effect of their growth and anatomical location on symptoms. For example, where the precise tumour location is more predictable, the growth rate is more predictable, and the tumour is more accessible, then diagnostic time may be more proportional to symptom experience, and shorter diagnostic time may be more likely to be associated with better outcomes (e.g. testicular, pharynx, larynx), and vice versa (e.g. brain, stomach).

However, as the overall quality of many of the studies was poor, care must be taken with implications.

There is the need for more high quality research, informed by the findings from this review, and from other initiatives, for example the Aarhus Statement (Weller et al, *Br J Cancer*, 2012), in order to inform the targeted development of interventions to improve cancer outcomes.

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