CBC (Confusing Broad Check) for Screening?

Clinical Question: What is the evidence for screening with a CBC (Complete Blood Count) in asymptomatic, non-pregnant adults?

Bottom Line: CBC or its components should NOT be ordered for screening asymptomatic non-pregnant adults as it does not reduce mortality. When CBC is tested routinely without cause, up to 11% are abnormal but <1% require management change. It is unclear which patients benefit and serious disease is virtually never found.

Evidence:

- Systematic review of 16 Randomized Controlled Trials (RCTs) of periodic health checks (screening):
  - Four included CBC components with other screening tests and reported no cancer-specific or overall mortality reduction.
- CBC components in population screening, case-finding (looking for illness in higher risk people), hospital admission screening, and pre-op screening.
  - Population screening:
    - 1,080 non-pregnant women age 20-64, 11% anemic (hemoglobin <120g/L) but none had colon cancer.
  - Case-finding: 11 observational studies.
    - Seven from 1987 review, evidence does not show benefit in identifying mild asymptomatic abnormalities. Example:
      - From 799 ambulatory patients 475 leukocyte tests, 11% abnormal but no asymptomatic disease identified.
    - Four other studies:
      - 595 patients (1,540 CBC components ordered): 6.4% were abnormal, 1.2% investigated, 0.2% led to management change.
      - Others similar.
  - Pre-Op screening: From four observational studies (214-1,005 patients) management was changed 0%, 0%, 0.2% and 2%.
  - Admission screening: Two observational studies (301-302 patients), ~11% had abnormal CBC components and ≤0.6% led to management changes.
- Stating “management changed” does not mean patients benefited.
- Harms of excess investigation not described.
Screening means testing healthy individuals for asymptomatic disease that could respond to early intervention to prevent suffering or mortality.

When diseases are uncommon (~1%): Only ~16% of abnormals are real disease. Only ~80% of abnormal leukocyte screenings were physiological or test variance. 60% of abnormal CBC components normalized by 18 months.

Serious diseases like colon cancer have better screening tests (FIT testing).


About 70% of primary care clinicians would order a screening CBC in a 55 year old woman and ordering CBC predicts other excess screening.

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References:

Tools for Practice is a biweekly article summarizing medical evidence with a focus on topical issues and practice modifying information. It is coordinated by G. Michael Allan, MD, CCFP and the content is written by practising family physicians who are joined occasionally by a health professional from another medical specialty or health discipline. Each article is peer-reviewed, ensuring it maintains a high standard of quality, accuracy, and academic integrity. If you are not a member of the ACFP and would like to receive the TFP emails, please sign up for the distribution list at http://bit.ly/signupfortfps. Archived articles are available on the ACFP website.
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