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The evolution of the complete blood count: have we gone too far? Perhaps we have. Comment on: "The evolution of the complete blood count: have we gone too far?"

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The evolution of the complete blood count: have we gone too far? Perhaps we have. Comment on: "The evolution of the complete blood count: have we gone too far?"

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I read with interest the article by Lichtman and Burack,[1] in which the authors propose a major change to the complete blood count (CBC) through the elimination of what they considered to be rarely informative or redundant variables. In their proposal, for cases such as healthy subjects, the screening CBC could be omitted or reduced to three variables: hemoglobin concentration, white blood cell count, and platelet count. For subjects with a known diagnosis, the authors suggest a CBC comprising seven variables. A CBC containing ten variables is recommended as part of the assessment of patients with newly undiagnosed findings.

I would like to focus on the "screening CBC" part of the proposal. But before delving into it, I would like to offer a comment on what I consider to be a major obstacle to its implementation. Although the suggestion may be readily adopted in academic centers, this cannot be assumed across physicians in diverse specialties and settings. This limitation does not invalidate the proposal, but it should be pondered when a major change to a core element of medical practice is put forward − namely, ordering a full CBC rather than its selected components (such as an erythrogram, leukogram, or platelet count).[i]

Now, turning to the "screening CBC" issue, I believe the authors' suggestion is an outstanding opportunity that may offer benefits beyond merely increasing the "utility of the CBC."[1] In addition to their recommendations, I propose that, in healthy individuals undergoing an annual physical examination, the CBC be *omitted* or *replaced with a more streamlined version including only two variables* − hemoglobin concentration and platelet count. The rationale is that omitting the CBC or limiting it to these two variables may have a substantial positive impact in an area of growing concern in the recent literature, namely the premature diagnosis of monoclonal B-cell lymphocytosis (MBL) and chronic lymphocytic leukemia (CLL).[2]

In a recent article, I discussed some aspects of this issue.[3] Briefly, while I am convinced that incidental lymphocytosis should be investigated with the aim of establishing a diagnosis, I am not persuaded that the CBC should be ordered in an indiscriminate manner, as is the case in current medical practice worldwide, where it is used as a "screening test" for "medication monitoring." This approach has led to a marked increase in the diagnosis of MBL and CLL in a clinical context in which the benefits cannot clearly be said to outweigh the negative psychological impact of a cancer (or premalignant condition) diagnosis, such as, high levels of anxiety, emotional distress, cognitive dissonance, and reduced quality of life.[2,4,5] In fact, in the 1950s, only approximately 10% of patients with CLL were identified through routine CBC testing.[6] Over the years, the reported incidence of CLL has increased worldwide, and a likely explanation for this trend is the widespread availability of automated hematology analyzers.[7] And it is here that the CBC change proposal may alter the scenario. Let me explain this point.

Today, approximately 80% of CLL cases are diagnosed with Binet stage A.[2] This implies that these patients will not receive any upfront treatment. From an oncological perspective, the situation is counterintuitive: the patient receives a diagnosis of an early-stage malignant neoplasm while simultaneously being informed that no treatment is required at that time. Ultimately, the individual ends up bearing the psychological burden of a cancer diagnosis without the benefits of that same diagnosis. This is what is referred to as *overdiagnosis* − a situation where "people are labelled with or treated for a disease that would never cause them harm"[2,8] − and it is precisely here that the proposal by Lichtman and Burack may help to avoid the problem. The point is that if the early diagnosis of MBL or CLL cannot offer the usual benefits of diagnosis, then there is no reason to screen for such a diagnosis.

It could be argued that identifying individuals with MBL or CLL is justified, as they face higher risks of infection and secondary malignancies; without diagnosis, they may miss appropriate surveillance and screening programs.[9,10] While this is true, it is important to recall that (a) the risks of infection and secondary cancers in MBL and CLL seems not be substantially higher than in the general population and (b) the benefits of surveillance must be weighed against the psychological burden and reduced quality of life associated with diagnoses for which no treatment is offered. In technical terms, it can be said that it is uncertain, at this moment, if there is *clinical utility* (that is, the likelihood that a diagnosis will lead to an improvement in the patient's well) that justifies an early diagnosis of MBL or CLL.[3]

In essence, while there is a rationale for ordering tests such as blood glucose measurement, PSA testing, and colonoscopy in healthy individuals for the early detection of diabetes, prostate cancer, and colonic adenomas, respectively, there are no indisputable benefits to the early diagnosis of MBL or CLL, whereas there are clear and well-recognized psychological harms affecting quality of life associated with such diagnoses.[2,5] Therefore, until a more favorable clinical outlook emerges, I consider the proposal by Lichtman and Burack to be entirely reasonable, and I see no justification for ordering a CBC in healthy individuals undergoing an annual "routine" medical evaluation.

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[i] By the way, and taking advantage of the authors' discussion of the Greek origin of the word "hematocrit" (from αἷμα; *haima*, "blood," and κριτής *kritēs*, "judge"), it is worth noting that, while the expression "complete blood count (CBC)" is appropriate to designate the test in question, the less commonly used expression "complete hemogram" is not strictly correct. This is because the word "hemogram" already denotes a complete description of the blood, as the suffix "-gram" (from γραφία; *graphia*) refers to a description or written record. If the description is about the blood, it necessarily implies the whole blood. There no such a thing as an "incomplete hemogram." Therefore, "CBC" or simply "hemogram" are the most appropriate terms to refer to this test.