A Lethargic Review of Anemia & Conjunctival Pallor

Andrew Pucker, O.D.

In the summer of 2009, my wife and I had the opportunity to travel to Lima, Peru with the OSU College of Optometry to provide eye care to over 1,500 underprivileged natives. While on this life-changing trip, I learned a great deal about eye care; however, as a young clinician I failed to screen my patients for anemia. Anemia results from the blood’s decreased ability to carry oxygen.\(^1\) There are many forms of anemia, but iron-deficiency anemia, which is often due to malnutrition, is the most common form.\(^1,3\) Anemia affects about \(\sim10\) percent of the population of the United States, yet worldwide it impacts \(\sim30\) percent of the population and \(\sim50\) percent of the children of Peru.\(^4\)

The following are common symptoms/risks associated with anemia:
- Lethargy and fatigue (most common)\(^5\)
- Dizziness\(^5\)
- Palpitations\(^5\)
- Impaired physical growth and mental development\(^4\)
- Increased risk of infant and child mortality\(^4\)

The following are some of the common tests for anemia:
- Hemoglobin concentration (gold standard)\(^4,5\)
- Hematocrit levels\(^6\)
- Palpebral conjunctival pallor\(^4,7\)
- Nailbed pallor\(^4,7\)
- Palmar pallor (palm of hand)\(^4,7\)

While clinicians in developed countries use hemoglobin levels to diagnose anemia, optometrists and other health care providers should consider screening for anemia by evaluating conjunctival pallor. A clinician should consider conjunctival pallor to be present when the anterior rim and posterior region of the palpebral conjunctiva are both pale while a normal patient is one where the anterior rim of the conjunctiva is considerably more red/pink than the posterior region.\(^8\)

Conjunctival pallor alone has not been shown to be a great indicator of anemia,\(^3\) yet when considered with symptoms and when the evaluations are done with colored grading scales, it could help a clinician make a meaningful referral.\(^3,6\) It may also help you determine who should receive life-saving iron supplements and even blood transfusions while working abroad.\(^3,2\)

References:
6. Nardone DA, Roth KM, Mazur DJ, McAfee JH. Usefulness of physical examination in detecting the presence or absence of anemia. *Archives of internal medicine* 1990;150:201-204.
Dr. Pucker received his Doctor of Optometry and Master of Science degrees from The Ohio State University. He is a Fellow of the American Academy of Optometry, and he is currently a clinical instructor and pursuing a Ph.D in Vision Science at The Ohio State University. Dr. Pucker's research interests include the tear film, ocular inflammation, myopia development, and contact lenses.

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