Complete Blood Count (CBC): Automated versus Manual Differential

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We have evolved into an automated high tech practice of medicine. With speed and automated precision we have sacrificed diagnostic information. The automated differential reports out groups of white blood cell types. With a manual differential, those groups are more specifically differentiated including immature neutrophils (bands) and atypical lymphocytes which are not routinely reported with an automated differential. When an automated differential is done, there may be certain triggers that would necessitate a manual differential be done [1,2]. However these triggers may be certain extreme values reported on the automated differential.

We have traditionally used the band count to help predict a bacterial infection with a "left shift". The atypical lymphocytes are seen with a number of different medical conditions including infections, drug and toxic reactions, post-perfusion syndrome, radiation exposure, autoimmune disorders, malignant disease, hormonal causes and idiopathic disorders like myasthenia gravis, Guillain-barre syndrome, lupus, rheumatoid arthritis and sarcoidosis [3]. Further, certain types of infectious agents will produce characteristic differential findings. For example an atypical lymphocytes count greater than 10% may be seen with Epstein-Barr virus infections. A few eosinophils noted along with a few atypical lymphocytes may occur with Mycoplasma infections. A manual differential showing 5 to 8 atypical lymphocytes may be seen with adenovirus infections. When an automated differential is performed we lose this diagnostic information which is not only helpful but also may be critical in more precisely diagnosing and effectively treating an ill patient.

References

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