

Neutropenia Navigator: An Approach to Interpret ANC

This guide helps to rule out medical emergencies in adults with low ANC and provides suggestions on how to target neutropenia workups to be as narrow and complete as possible.



“Red flag”
symptoms?

MEDICAL EMERGENCIES

ANC < 500



Fever or bacterial
infection

EMERGENCY DEPARTMENT



Concern for
leukemia?

URGENT REFERRALS

Other cytopenias

Early white cell or
dysplastic forms

Concerning physical
exam findings (bruising,
splenomegaly, etc.)

URGENT REFERRAL



Investigate according to
clinical symptoms and
patient information

INVESTIGATIONS

Suspected
autoimmune disease?

CONSIDER: Antinuclear antibody,
rheumatoid factor, ds-DNA

Suspected dietary issues?

CONSIDER: B12, folate, copper

Recent acute viral
infection?

CONSIDER: Repeat ANC in 2–4 weeks

Risk of chronic infection?

CONSIDER: Test for HIV and HCV

New medication?

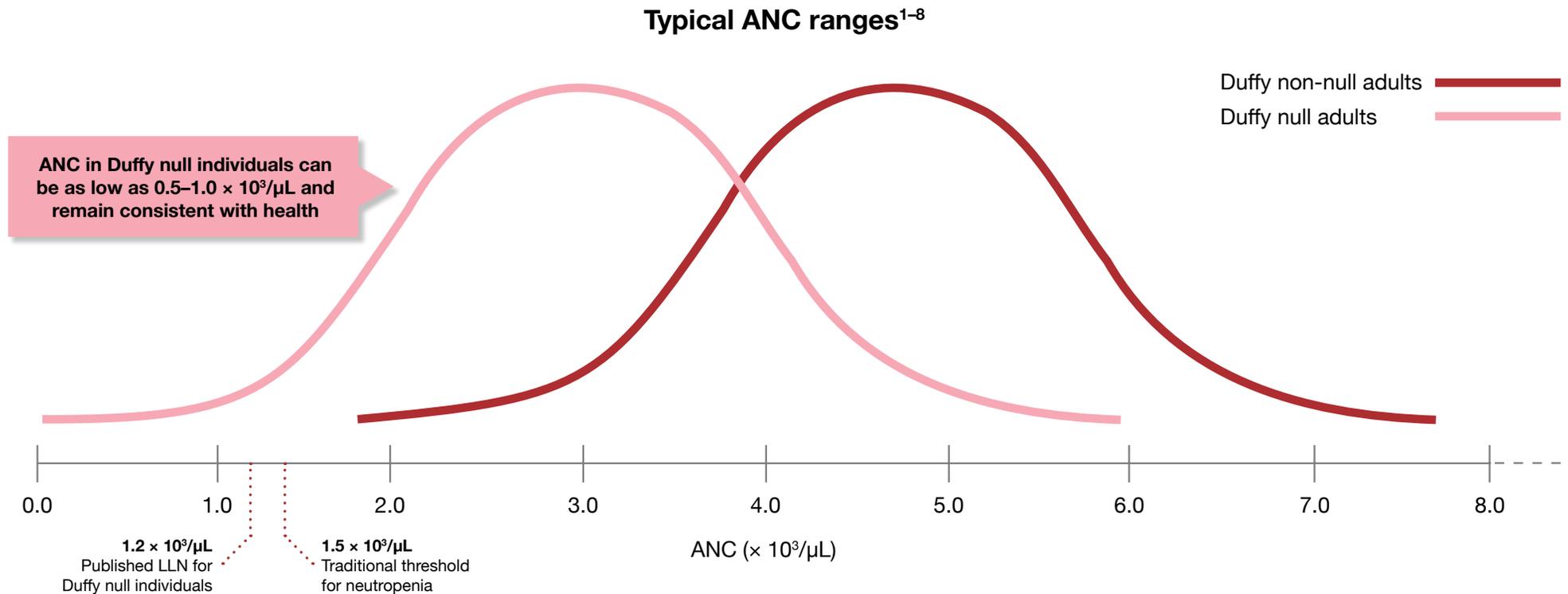
CONSIDER: Stop offending agent and
repeat ANC in 2–4 weeks

B-Symptoms and
elevated lymphocytes?

CONSIDER: Peripheral blood flow
cytometry for lymphoma

Neutropenia Navigator: Recognizing DANC

Duffy null-associated neutrophil count (DANC) is a common and normal variant, associated with the Duffy null blood group phenotype, that results in lower circulating ANC.



Remember: People with the Duffy null phenotype can also have other causes of low ANC. Be sure to first comprehensively assess for other etiologies (especially in emergencies).

Abbreviations: ANC, absolute neutrophil count; CBC, complete blood count; DANC, Duffy null-associated neutrophil count; ds-DNA, double-stranded DNA; HCV, hepatitis C virus; HIV, human immunodeficiency virus; LLN, lower limit of normal.

References: 1. Fioredda F, et al. HemaSphere. 2023;7:e872; 2. Khoudry JD, et al. Leukemia. 2022;36:1703-19; 3. Arber DA, et al. Blood. 2022;140:1200-28; 4. Greenberg PL, et al. Blood. 2016;128:2096-7; 5. Palmblad J, Höglund P. Pediatr Blood Cancer. 2018;65:e27361; 6. Thobakgale CF, et al. Curr Opin Hematol. 2014;21:50-57; 7. Denic S, et al. BMC Hematol. 2016;16:15; 8. Merz LE, et al. JAMA 2023;329:2088-9.

