"A truly independent laboratory committed to you and your patients"

MEDLAB PATHOLOGY

Autumn/Winter 2012

Anti-neutrophil cytoplasmic antibody (ANCA)

Anti-neutrophil cytoplasmic antibodies (ANCA) are antibodies against various cytoplasmic neutrophil antigens. This is not the same test as anti-neutrophil antibodies, which are antibodies against cell surface proteins that can lead to neutropenia.

ANCA is useful in supporting the diagnosis of some small vessel vasculitic disorders. Possible patterns reported on immuno-fluorescence include:

- (C)ytoplasmic-ANCA
- (P)erinuclear-ANCA
- Atypical C or P ANCA

Each pattern has a specific target neutrophil cytoplasmic target antigen (e.g. PR3/MPO/other) and disease associations (Table 1). An ELISA can be performed to quantitate the antibodies to PR3/MPO. A positive ANA may occur in the presence of an atypical ANCA (in these situations ELISA is performed to ensure there are no antibodies to PR3/MPO).

At MedLab when ordering an ANCA, both immuno-fluorescence (with ANA at a titer of 1:40) and an ELISA to PR3/MPO are performed.

ANCA is performed once a week at MedLab Pathology.

Blood tube to collect: Gel

If there are any questions regarding ANCA interpretation, please call MedLab and ask to speak to Dr Sam Mehr, Immunopathologist. **(02) 8745 6500**

Table 1 – ANCA patterns, target antigens and disease associations.

Pattern on immuno-fluorescence	Target antigen	Some disease associations
C-ANCA	Proteinase 3 (PR3)	Wegner's granulomatosis (80%) Micro-polyangitis (30%) Churg-Strauss syndrome (30%), Other
P-ANCA	Myeloperoxidase (MPO)	Micro-polyangitis (60%) Pauci-immune segmental necrotising glomerulonephritis (60%) Churg-Strauss syndrome (20%), Other
Atypical ANCA	Elastase, cathepsin G, lysozime, lactoferrin, BPI	Inflammatory conditions, such as inflammatory bowel disease, lupus, autoimmune hepatitis, primary sclerosing cholangitis, cystic fibrosis, and others.

THIS ISSUE:

Screening for Foetal Aneuploidy

In recent years, an increasing number of non-invasive biochemical screening tests and ultrasound techniques have been developed which can significantly increase the identification of pregnancies at risk for Downs Syndrome and other chromosomal abnormalities in women of all ages.

The First Trimester Combined Screen for Foetal Aneuploidy is a screening test for Downs Syndrome. Advantages compared to second trimester biochemical screening include:

- Earlier diagnosis (11-14 weeks)
- Higher detection rates for foetal Downs Syndrome (80-90% or perhaps even higher compared to 75% for the second trimester "quad" screen and 60-70% for the older "triple" screen)
- Detection of most major chromosome abnormalities other than trisomy 21
- Acts as a nonspecific marker for other birth defects including some major cardiac defects and syndromic conditions
- Can detect a number of major structural birth defects associated with normal chromosomes

The primary disadvantage is - Narrow window of entry (11-14 weeks with ideal entry at 11-12 weeks).

This test integrates the 3 risk components that have been found to be effective in detection of foetal Downs Syndrome during the first trimester:

- Maternal Age
- Ultrasound measurements - nuchal translucency and crown rump length
- Maternal biochemistry (free ß-hCG and PAPP-A)

FREE BETA HCG - There are many metabolites of HCG. One of these is free beta HCG. Elevated levels of free beta HCG can be used during the first trimester to help screen for foetal Downs Syndrome.

PAPP-A (PREGNANCY ASSOCIATED PLASMA PROTEIN-A) - Low levels of PAPP-A were found to be associated with foetal chromosome abnormalities during the early 1990s. This is one of the most useful blood tests during the first trimester.

METHOD

The combined screen for foetal aneuploidy requires 3 components, as outlined by the Fœtal Medicine Foundation.

- Appropriate counselling
- Measurement of nuchal translucency by appropriately trained sonographers (RANZCOG certified)
- Measurement of maternal serum free ß-hCG and PAPP-A

RESULTS AND INTERPRETATION OF RESULTS

The screening depends on the overall calculated risk, based on the combination of maternal age, ultrasound measurements, and maternal biochemistry. The risk of foetal Downs Syndrome in a 35 year old woman (1:270) is typically used as the threshold for making this determination, so that all risks less than this will be termed "within normative range" and all risks higher than this are termed "positive". Note that the positive indication does NOT indicate that the foetus has Downs Syndrome, only that the risk is considered to be high enough that the woman may want to consider further diagnostic testing. It is far more likely that the foetus is completely normal. For example, a risk of 1:200 would be considered "positive" but the odds are that 199 of 200 cases the foetus will be normal.

The Foetal Medicine Foundation promotes screening for Downs Syndrome at 11-14 weeks by nuchal translucency or a combination of nuchal translucency and maternal serum biochemistry.

Extensive research has now established that screening by nuchal translucency can detect about 80% of affected foetuses for a screen positive rate of 5%. The combination of nuchal translucency and maternal serum free ß-hCG and PAPP-A improves the detection to 90%.

At Medlab this test is performed every day on B.R.A.H.M.S KRYPTOR analyser, one of the best performing analysers for PAPP-A and Free bHCG tests in the market.

Blood tube to collect: Gel

Useful References:

http://www.fetalscreening.com/nuchal_screening.php
Common Sense Pathology - Antenatal Screening for Down Syndrome Nov 2007
David A. Nyberg, Jon Hyett, Jo-Ann Johnson, Vivienne Souter. First-Trimester Screening. Ultrasound Clin 1 (2006) 231–255

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Billing

Medlab Pathology will Bulk-Bill patients who provide a current health care, Pensioner or Veteran affairs card.

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