



Health and Wellness

INTEFERON GAMMA RELEASE ASSAY (IGRA) NB/PEI CHICA Chapter

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Dr. Lamont Sweet

Deputy Chief Public Health Officer

ONE ISLAND FUTURE

ONE ISLAND HEALTH SYSTEM



IMMUNITY TO TB AND THE IGRA STORY

- Immunity may be humoral or cellular
- Humoral Immunity
 - ▶ Depends upon circulating antibodies mainly IgM and IgG immunoglobulins
 - ▶ Vaccines provide immunity mainly with IgG



- Cellular Immunity

- ▶ Lymphocytes identify antigens and send chemical messages to cells to fight the antigens
- ▶ TB stimulates lymphocytes
- ▶ Once exposed to TB the lymphocytes develop immunological memory
- ▶ Lymphocytes release Cytokinins which are chemical messengers which initiate immune response



INTERFERON GAMMA (IFN GAMMA)

- When exposed to TB the lymphocytes release Interferon Gamma (IFN Gamma)

BUT

- The lymphocytes do not release IFN Gamma when exposed to any other common Mycobacteria
- Once exposed to TB once a person's lymphocytes are sensitized and produce high levels of IFN Gamma if exposed again (like a booster response to vaccines)
- Can now take blood and expose to TB antigen in lab
 - ▶ If IFN Gamma released then know that person was exposed to TB previously



INTERFERON GAMMA RELEASE ASSAY (IGRA)

- Two IGRA tests licenced in Canada
- The Quantiferon-TB Gold test done in Saint John, NB
- **When TST positive the IGRA is positive only when the person was previously exposed to TB**
- TST Positive when
 - ▶ Exposed to TB previously
 - ▶ Exposed to BCG previously
 - ▶ Allergic reaction to TST
 - ▶ False + reading
- Never consider a TST easy to read



IGRA – TECHNICALLY DIFFICULT

- The blood for an IGRA should be processed immediately after being drawn
- Difficult if patient cannot get to lab easily
- Very difficult for Long Term Care Facility (LTCF)
- Have to book everyone to come into lab and virtually at same time (once month or for TB contact investigation)
- Should do IGRA within 72 hours of TST being administered for contact investigation (IGRA **may** booster positive giving false +)



- The IGRA is not 100% reliable but reliability increases as further studies done
- Cannot use IGRA to diagnose TB
- Cannot rely on IGRA yet for **highest risk or close contacts** (household, seniors, immunocompromised, etc.)
- Can test low risk (**casual** contacts) including immunocompromised, seniors, children, all ages.
- For **casual** contacts with initial TST+, can test with IGRA and if negative IGRA, test by IGRA again at 8 weeks



- Some doing routine TST and IGRA for **casual** contacts and screening by taking blood when TST administered
- This involves increased expense and time
- We do TST first for **casual** TB contacts and if TST+ in 48 hours, take blood for IGRA before 72 hours
- Presently not routinely screening immigrants for IGRA
- However for immigrant HCW with + TST are doing IGRA and for many others who screen positive particularly if they will take INH

- High rate of TST+ in immigrants due to BCG and exposure to TB
- Refugees usually TST+ due to exposure to TB so most will be IGRA+
- May be some limitations of testing due to increased costs and time needed
- Does save two visits for TST and identifies those positive for TB with one test if only IGRA done
- For those TST + on screening (not contact investigation) will IGRA test at monthly clinic without major concern about induced booster + IGRA (we are awaiting further guidelines)

CONCLUSION

- A major breakthrough in testing for TB particularly in **lower risk (casual)** contacts
- As more studies are done the reliability of the IGRA will very likely increase
- IGRA negative when TST+ due to BCG very helpful particularly for HCW
- Reduces significantly those with +TST who are offered INH (particularly HCW and immigrants)
- Likely that future guidelines will result in increased tests for IGRA