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"Predictive cutoff point of admission N-terminal pro-B type natriuretic peptide testing in the Ed for prognosis of patients with acute heart failure"
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Why: Who else wonders how the heck to interpret the pro-BNP and what does it mean really?

Study: Evaluate proBNP and determine predicting cutoff level for heart failure at time of admission in patients with SOB and LV dysfunction.

Methods:
Who: 100 patients >21yo w/CC: SOB had pro-BNP checked at admission and followed clinical outcome of mortality to 30 and 365 days. NOTE: if bounceback, only initial data included for first admission
(not including ACS, valvular disease, arrhythmias, traumas, ESRD, HD, COPD, cancer pts or d/c to home.)

What: Prospective, Observational, Single Center, Cross sectional study

Where: at Tertiary Care hospital in Izmir, Turkey (maybe not the most generalizable, but ok…)

When: Aug 2007-Sep 2008 (were we even using the pro-BNP then?)

How: Reviewed admission proBNP from 20 ml from AC venipuncture; standardized processing at same lab for sandwich enzyme immunoassay; serial pro-BNP during admission with blinded TTE for LV function if <50% = systolic dysfunction, if normal but with increased E/e', likely restrictive LV dysfunction; d/c diagnosis, telephone interviews at 30 and 365 days yielded 100 patients for the study of pro-BNP. Some fancy SPSS stats with ROC, chi2, student t test, Mantel Cox Log rank; for all tests $p<0.05$ was considered statistically significant.

The Numbers:
350 consecutive patients, less 233 who's proBNP was <age based threshold (i.e. mostly negative studies). Of 117, 17 had non heart failure discharge diagnoses and were excluded.
>450 pg/ml if 21-50 year olds (do you really even send it much on this age group?)
>900 pg/ml if 50-75 year olds
>1800 pg/ml if >75 year old

ProBNP cutoff of 9152.4 pg/mL (71.4% sens, 81.3% spec, p= 0.002) for predicting 30 day mortality.
ProBNP cutoff of 3630.5 pg/mL (83% sens, 52.2% spec, p=0.014) for predicting 365 day mortality.

Conclusions: proBNP was a strong and independent predictor or 30/365 day mortality in HF patients and could be used for clinical risk stratification with "high" (not really stellar high, but helpful) sensitivity and specificity in this study of 100 Turkish patients with Heart Failure.

Take Home Points

- Age adjusted may matter; even in 100 Turkish patients c/w our own populations; but these guys did NOT validate their cutoffs in this study, used from a previous study
- Condition adjusted matters, cancer, AKI/ARF, ACS, AVR/AS can mess up your proBNP
- Always think alternate diagnoses, even if you send the pro-BNP

- BNP and Pro-BNP both are markers of L>R but both ventricles 2/2 volume stretching; proBNP biologically inactive peptide that circulates in higher levels than BNP.
- Interestingly, LVEF did not match with predictive value
- If you get a high proBNP, it is not likely to change your management in the ED because you already know and are treating CHF; but one ED doc should look grimly on any proBNP >9200 ng/mL (IF this measurement can be extrapolated to similar processing at our labs locally.)
