Natriuretic peptides are mainly measured in elderlies, but remain largely underused and sometimes misused: results of big data analysis


Methods

- We examined all routine analysis data generated between February 17, 2010 and August 30, 2015 from 22 laboratories located in two districts of the Western part of France, “the French Brittany”, covering 13,653km² and corresponding to a total population of 1,723,653 people.
- These laboratories include 6 hospital/clinic laboratories and 16 non hospital/clinics laboratories; they all belong to the “Biorance Laboratoire Réunis”, are equipped with Roche Diagnostics instruments and measured NT-proBNP as the NP.
- All data were automatically collected through the middleware after a double-step de-identification process.

Results

- 22,265 distinct physicians ordered at least one analysis during the study period. This corresponds to a total of 3,606,432 analysis orders for 557,650 distinct adult (>20y) patients.
- From these, only 56,653 (1.6%) included at least one prescription for NT-proBNP measurement; this corresponds to 27,527 distinct patients (4.9% of the study population).
- NT-proBNP measurements gradually increased from 9,188 in 2011 to 12,938 in 2014 (p<0.001).
- Similar number of measurements were done in men versus women (~50% each).
- 39,828 (70.3%) of measurements have been done in elderly patients ≥ 75y (fig 1).
- General practitioners (GP) ordered >70% of the measurements.
- 27.0% were performed in hospital/clinics labs, 10.1% in dedicated emergency labs and the remaining 62.9% in non-hospital/clinic labs.
- NT-proBNP was re-measured in 10,167 patients (36.9%) after a median of 60 days (IQR: 14-217). Median initial NT-proBNP concentration was 1,621 (IQR: 560-3,926) ng/L and the relative variation between the first and second measurement was 1% (95% CI: -29% to 46%).
- In combination with NT-proBNP, creatinine was measured only 47,680 times (84.2%); other frequently associated analyses ordered in combination were electrolytes (n=43,165), HbA1C (40,074), hemogram (23,231), and liver enzymes (17,195).

Conclusion

- Among a very large cohort, we observed a gradual increase of NP measurements over time but NP measurements only accounted for 1.6% of overall analysis prescriptions.
- The very large majority of NP measurements was performed in elderly patients, was ordered by GP and 16% of measurements were not performed in combination with creatinine.
- Big data analysis may offer a unique opportunity to improve our knowledge in current practices.

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