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FALSE-POSITIVE BNP RESULTS CAUSED BY HUMAN ANTIMOUSE ANTIBODIES (HAMAS) INTERFERENCE: A CASE REPORT

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A 61-year-old man was seen for sustained high serum B-type natriuretic peptide (BNP) level prior to admission. During the past 3 months, the serum BNP of the patient were measured for four times with Abbott AxSYM BNP immunoassay method. The results were as high as 3234, > 4000.00 and 3798 pg/ml in one hospital (normal reference value (NRV): <119.0 pg/ml), and 1753.50 pg/ml (NRV: <30 pg/ml) in our hospital. The patient had a history of mouse biting 46 years ago. The rheumatic factor level was normal. All the currently known pathological reasons have been excluded such as heart failure, coronary heart disease, left ventricular hypertrophy, atrial fibrillation, COPD, PE, renal insufficiency, shock, sepsis, anaemia and cirrhosis. The NT-proBNP level was 60 pg/ml (NRV: 0–125 pg/ml) with Roche Cardiac Cobas immunoassay method. The authors tried several methods to check the possibility of false positive result: (1) The BNP level was 6.40 (NRV: 0–80) pg/ml with Biosite Triage BNP assay method targeting at different epitope/isotype of BNP molecule; (2) Dilution of the patient's serum with control serum resulted in a non-linear decrease in the patients serum BNP concentration (1:1 1551.37 pg/ml; 1:2 1061.5 pg/ml; 1:5 246.76 pg/ml; 1:10 31.9 pg/ml; 1:100 2.56 pg/ml); (3) Human antimouse antibodies (HAMAs) interference was finally confirmed by direct HAMA measurement using an enzyme immunoassay (human antimouse), which yielded a value of 40.5 (NRV: 5.0–12.5) ng/ml. In this case, the false-positive BNP results were caused by HAMAs interference and had nothing to do with the clinical pathological conditions such as cardiac insufficiency. The clinical doctors should ask the history of animal exposure and consider the possibility of HAMAs interference when the serum BNP level of the patient disagrees with the clinical conditions.