Manuscript #295

1. Title (length 26):
Hypertension & NSAID Use

2. Writing Group (list individual with lead responsibility first):
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3. Timeline:
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4. Rationale:
Cross-sectional studies in the elderly have shown that non-steroidal anti-inflammatory drugs: (NSAID) users have higher systolic blood pressures than nonusers (mean difference 5 mmHg), and were more likely to be hypertensive (O.R. ranging 1.4 - 2). These associations were evident after adjustment for covariates such as age, weight, prevalent CHD, current smoking and alcohol use. A case-control study in an elderly Medicaid population showed that NSAIDs may increase the risk of initiation of anti-hypertensive therapy. Meta-analysis of short-term clinical trials suggest that NSAIDs reduce the effectiveness of antihypertensive therapy. After adjustment for age, trial quality, dietary salt intake, and whether subject was normotensive or hypertensive, a relationship between blood pressure (BP) and NSAIDS was found only in hypertensive subjects; indomethacin, naproxen and piroxicam were associated with the largest increases in BP. No association between NSAID use and diastolic hypertension has been found in observational studies or clinical trials.

5. Main Hypotheses:
Cross-sectional: 1) After adjustment for blood pressure determinants, NSAID users have higher mean systolic blood pressure than nonusers; 2) NSAID use interacts with hypertension status in determining systolic BP, specifically: the effect of NSAID on systolic BP is larger among hypertensives than normotensives.
Prospective: NSAID users have a higher rate of incident hypertension (SBP greater than or equal to 140 mmHg, or DBP greater than or equal to 90 mmHg), or starting antihypertensive medication than nonusers. Rates of incident hypertension vary with type of NSAID: naproxen, indomethacin, and piroxicam are associated with higher rates than ibuprofen, salsalate, and other NSAIDs.

6. Data:
All ARIC participants; Visits 1 & 2; Variables: id, hypert05, vlage01, racegrp, gender, prvchd04, evel01, evel02, homon01, diabts02, cigt01, drnkr01, ethn03, center, hyptmd01, hyptmd02, rangna01, mddxmi02, symchd03, bmi01, hxofmi02, cholmd01, sprt_i01, menops01, sbpa21, sbpa22, afua33a, afua33b, afua33c, afua33d, afua33e, afua33f, afua33g, afua33h, afua33i, afua33k, afua33l, afua33m, hom16c, hom23c, hom24c, mhx02, mhx03, mrmrt_1-mrmrt_17, stia01, chma08, caff, ecgni23, v2age21, cholmd21, cigt21, diabts22, drnk21, ethn03, v2center, bmi21, hypert25, pheb04, pheb05a, pheb06, pheb07a, hhxb24, hhxb31, hhxb14-hhxb20, hhxb39; hhxb40, hhxb42, hhxb02, hhxb03, hhxb05c, chmb08, sbp21, sbpb22.