Choosing Medications Wisely

Reduce IV antihypertensive use for asymptomatic severe uncontrolled hypertension in hospitalized non-ICU patients

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BACKGROUND and SIGNIFICANCE

Severe asymptomatic HTN (BP>180/110 without acute target organ damage, also called HTN urgency) is seen in up to 70% of patients hospitalized for various reasons (1).
Contrary to the term HTN urgency, urgent treatment is NOT indicated for this commonly encountered problem that is not associated with imminent adverse cardio or Cerebro vascular event(2,3). However, IV antihypertensive medication pushes (IV Hydralazine, Labetalol, Enalapril) are frequently used in hospitalized patients to aim for quick reduction of BP(4,5,6). Such use of IV medications is NOT indicated and potentially can lead to dizziness, falls, hypotension, increased length of hospital stay and associated health care costs(4,5,6).

Hypertension is a highly prevalent comorbidity in our community. If chronically uncontrolled, this can lead to chronic kidney disease, strokes etc. Therefore, chronic HTN needs to be aggressively managed in ambulatory setting with lifestyle changes and medications with goals and treatment per guidelines to aim for gradual reduction over several weeks. Rapid and overaggressive management in hospitalized patients can lead to adverse outcomes.

PROJECT AIM and MEASURES

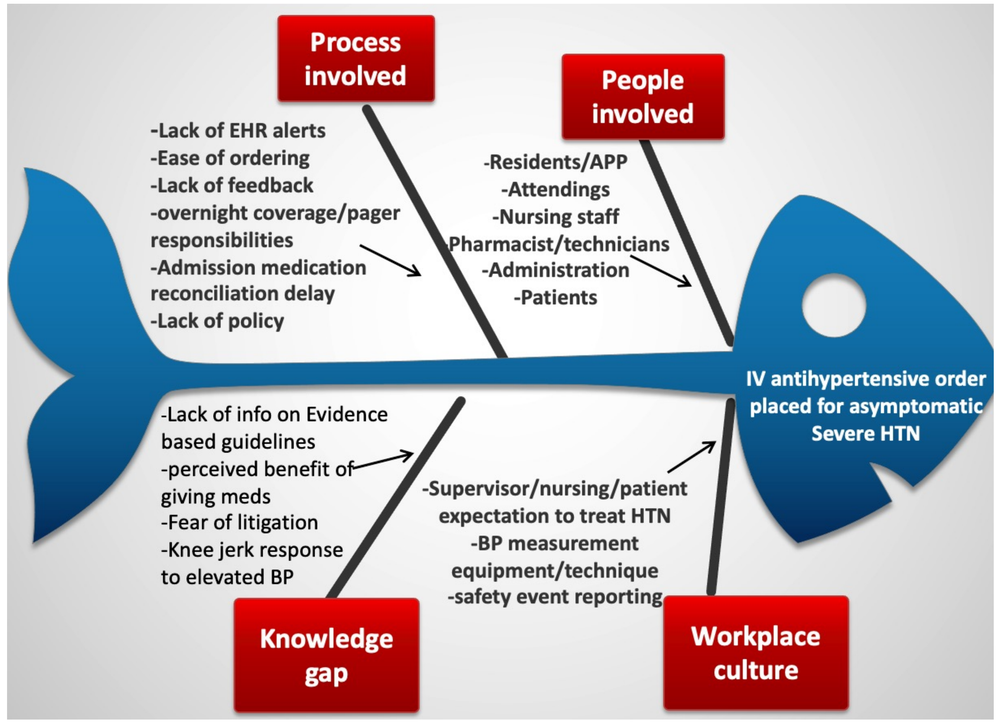
SMART AIM

30% reduction in IV antihypertensive doses used for adult hospitalized non-icu, non- pregnant patients at VMC in 6 months post EHR intervention

Process Measure

No. of IV antihypertensive doses (labetalol, hydralazine, enalapril) administered /inpatient day pre and post interventions

FISH BONE DIAGRAM (Figure 1)



PROPOSED EHR ORDERSET (figure 2)

Asymptomatic severe hypertension (HTN urgency) inpatient Management order set
(Non pregnant ,Non-ICU patients)

Ensure home meds that are NOT contraindicated are resumed, consider earlier dosing of home meds, treat contributive factors pain/anxiety/substance withdrawal as applicable.

After above steps if BP still elevated above SBBP >180 or DBP>110 consider one of the below options.

For patients with cardiovascular issues like h/o CAD, CHF, CVA, Aortic aneurysm
Aim for gradual reduction over several hours with following oral options

- captopril 6.25 **Q6 PRN for SBP>180 or DBP>110**
- captopril 12.5 **Q6 PRN for SBP>180 or DBP>110**
- carvedilol 6.125 **Q6 PRN for SBP>180 or DBP>110**
- carvedilol 12.5 **Q6 PRN for SBP>180 or DBP>110**
- clonidine 0.1mg **Q6 PRN for SBP>180 or DBP>110**
- clonidine 0.2 mg **Q6 PRN for SBP>180 or DBP>110**

- **(FOR INPATIETN USE ONLY,ABOVE MEDS NOT TO BE CONTINUE AT DISCHARGE)**

For patients WITH OUT cardiovascular issues
-No urgent/immediate treatment is indicated.
-If persistently hypertensive can consider adding long-acting PO antihypertensive agent per JNC guidelines
-Close PCP follow up at discharge for continued HTN management, lifestyle changes

CHANGES MADE (PDSA CYCLES)

PDSA 1: Resident survey done to identify drivers for the behavior of using IV medication orders, subsequently fish bone diagram developed (Figure 1)
PDSA 2 : Baseline data collection
PDSA 3 : Resident education via lectures ,e-mail to faculty, Inpatient management posters in work areas
PDSA 4: Internal medicine Grand rounds

NEXT STEPS

PDSA 5: EHR order set to help guide physicians to choose PO options over IV meds and reduce variability in clinical practice (Figure 2)
PDSA 6: Nursing education
PDSA 7: Data collection after these interventions.

RESULTS/OUTCOMES

Pending

References

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