

CONCORD INTERNAL MEDICINE

HYPERTENSION PROTOCOL

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The information contained in this protocol should never be used as a substitute for clinical judgment.

The Clinician and the patient need to develop an individual treatment plan tailored to the specific needs and circumstances of the patient.

HYPERTENSION PROTOCOL

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DETECTION AND CONFIRMATION OF HYPERTENSION

In general hypertension control begins with detection and requires continued surveillance. Health care professionals are strongly encouraged to measure blood pressure at each patient's visit.

Hypertension should not be diagnosed on an initial visit unless systolic blood pressure (SBP) is ≥ 180 mm Hg and/or diastolic blood pressure (DBP) is ≥ 110 mm Hg. Initial elevated readings should be confirmed on at least two subsequent visits during one to several weeks or measurement of blood pressure at home for one (1) week (See Page 3,4 & 5) or 24 hour blood pressure monitoring.

Blood pressure should be measured in such a manner that values obtained are representative of patient's usual levels. The following techniques are recommended:

- 1 Patients should be seated with their arm bared, supported and at heart level. They should not have smoked or ingested caffeine within 30 minutes prior to the measurement.
- 2 Measurement should begin after five minutes of rest.
- 3 The appropriate cuff size must be used to ensure an accurate measurement (arm circumference range at midpoint): pediatric cuff less than 9 inches; regular cuff 9 to 13 inches; large cuff > 13 to 17 inches; and adult thigh cuff > 17 inches. The bladder should nearly (at least 80%) or completely encircle the upper arm (above elbow).
- 4 Measurements should be taken with a recently calibrated aneroid manometer or a calibrated electronic device.
- 5 Measurements should be taken in both arms. Document in the patient's records which arm the systolic blood pressure is higher. Use the arm with the higher systolic blood pressure in all subsequent measurements of blood pressure. (If the difference in the systolic blood pressure is >15 mm Hg patient may have subclavian artery stenosis on the side with the lower blood pressure.
- 6 Two or more readings separated by two minutes should be averaged. If the first two readings differ by more than 5mm Hg, additional readings should be obtained.
- 7 If the initial clinic reading average of SBP is ≥ 140 mm Hg and/or DBP is ≥ 90 mm Hg and patient does not have chronic kidney disease (eGFR < 60 mL/min) or diabetes mellitus, patient is to have a follow up clinic or nurse visit in seven days for repeat blood pressure measurement or patient can monitor blood pressure at home per protocol (See page 13) or patient can have 24 hour blood pressure monitoring.
- 8 If the initial clinic reading average of SBP ≥ 130 mm Hg and/or DBP is ≥ 90 mm Hg and patient has chronic kidney disease (eGFR < 60) or diabetes, patient is to have a follow up clinic or nurse visit in seven days for repeat blood pressure measurement or patient can monitor blood pressure at home per protocol (See page 13) or patient can have 24 hour blood pressure monitoring.
- 9 Minimum of two visits excluding the original screening visit.
- 10 Minimum two readings per visit (preferably at same time of day).
- 11 Average of all readings.

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GUIDELINES FOR CONFIRMATION OF HYPERTENSION

If patient does not have diabetes or chronic kidney disease and the average of all readings in the clinic or at home are SBP \geq 140 mm Hg and/or DBP \geq 90 mm Hg, the patient has hypertension.

If the patient does not have diabetes or chronic kidney disease and the averages of the 24 hour blood pressure monitoring during the day are SBP \geq 135 mm Hg and/or the DBP \geq 85 mm Hg or greater, the patient has hypertension.

If the patient has diabetes or chronic kidney disease and the average fall reading in the clinic or at home are SBP \geq 130 mm Hg and/or DBP \geq 80 mm Hg, the patient has hypertension.

If the patient has diabetes or chronic kidney disease and has averages of the 24 hour blood pressure monitoring during the day are SBP \geq 125 mm Hg and/or DBP \geq 75 mm Hg, the patient has hypertension.

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Proper Use of Home Blood Pressure Monitor

- No tobacco or caffeine for 30 minutes before measurement
- Blood pressure reading should be taken when sitting quietly after resting 5 minutes.
- Arm being used to measure blood pressure should be supported on a flat surface with the upper arm at the level of the heart.
- Back should be supported.
- Both feet should be flat on the floor.
- All measurements should be made under the same conditions.

For 7 days:

- Take 2-3 readings in the morning at the same times each day (**before you take your medications**).
- Record readings on the worksheet; bring with you to your office visit or send in as is instructed by your provider. (Refer to pages 4 & 5)
- Bring your machine with you to visits to be checked at least once a year for accuracy.

BLOOD PRESSURE WORKSHEET

Patient's Name: _____ DOB: _____

			Systolic	Diastolic	Pulse
1. Date	_____		_____	_____	_____
Time	_____	AM	_____	_____	_____
Time	_____	AM	_____	_____	_____
Time	_____	AM	_____	_____	_____
Time	_____	PM	_____	_____	_____
Time	_____	PM	_____	_____	_____
Time	_____	PM	_____	_____	_____
2. Date	_____				
Time	_____	AM	_____	_____	_____
Time	_____	AM	_____	_____	_____
Time	_____	AM	_____	_____	_____
Time	_____	PM	_____	_____	_____
Time	_____	PM	_____	_____	_____
Time	_____	PM	_____	_____	_____
3. Date	_____				
Time	_____	AM	_____	_____	_____
Time	_____	AM	_____	_____	_____
Time	_____	AM	_____	_____	_____
Time	_____	PM	_____	_____	_____
Time	_____	PM	_____	_____	_____
Time	_____	PM	_____	_____	_____
4. Date	_____				
Time	_____	AM	_____	_____	_____
Time	_____	AM	_____	_____	_____
Time	_____	AM	_____	_____	_____

PLEASE COMPLETE BOTH SIDES!

Time _____ PM _____

Time _____ PM _____

Time _____ PM _____

5. Date _____

Time _____ AM _____

Time _____ AM _____

Time _____ AM _____

Time _____ PM _____

Time _____ PM _____

Time _____ PM _____

6. Date _____

Time _____ AM _____

Time _____ AM _____

Time _____ AM _____

Time _____ PM _____

Time _____ PM _____

Time _____ PM _____

7. Date _____

Time _____ AM _____

Time _____ AM _____

Time _____ AM _____

Time _____ PM _____

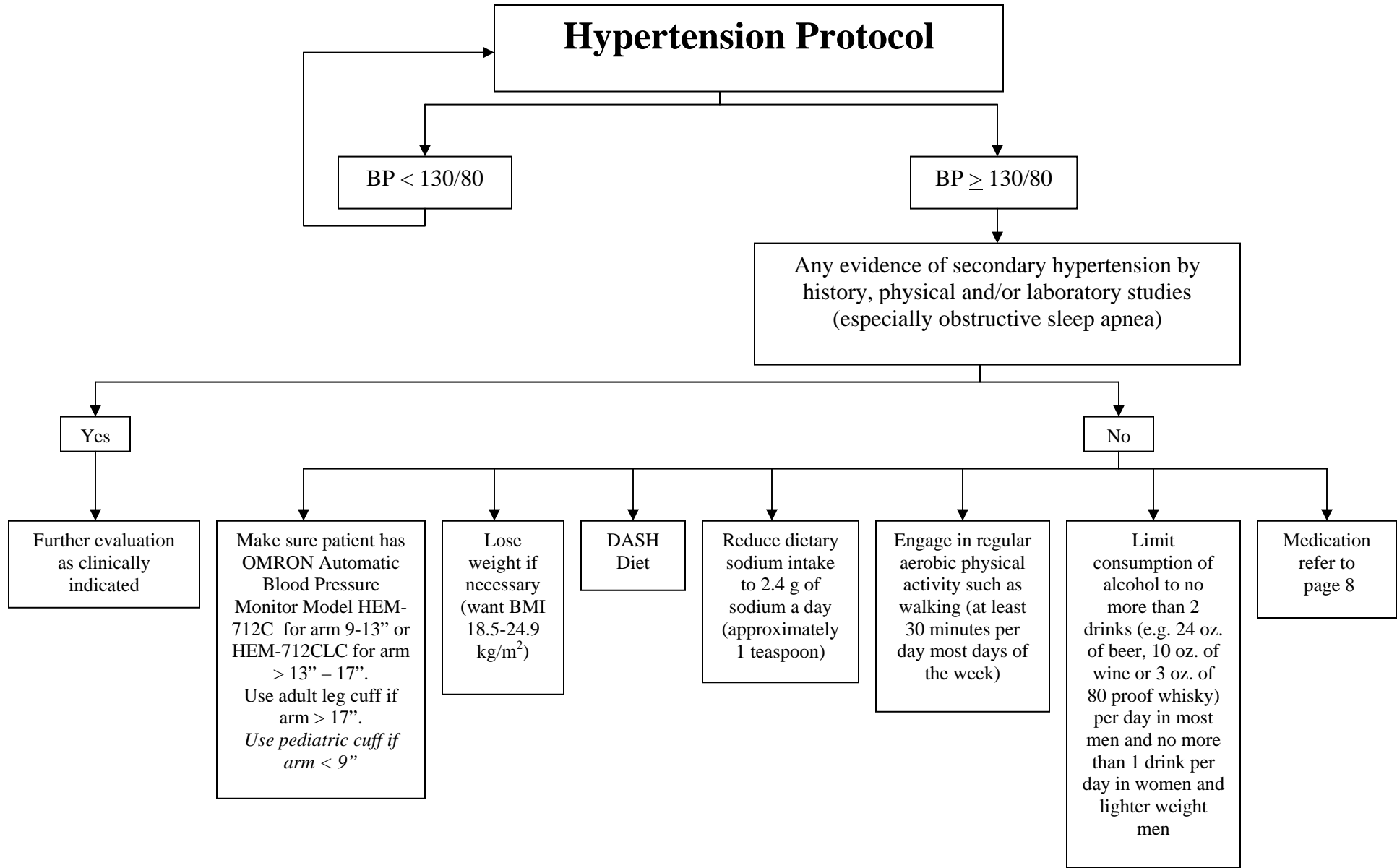
Time _____ PM _____

Time _____ PM _____

Average of Readings Days 2-7 _____

GOAL: SYSTOLIC BP < 130 DIASTOLIC BP < 80

Please mail to: Concord Internal Medicine
200 Medical Park Drive, Suite 550 OR Fax to: 704-403-1090
Concord, NC 28025



Hypertension Protocol

BP < 130/80

BP ≥ 130/80

Any evidence of secondary hypertension by history, physical and/or laboratory studies (especially obstructive sleep apnea)

Yes

No

Further evaluation as clinically indicated

Make sure patient has OMRON Automatic Blood Pressure Monitor Model HEM-712C for arm 9-13" or HEM-712CLC for arm > 13" - 17". Use adult leg cuff if arm > 17". Use pediatric cuff if arm < 9"

Lose weight if necessary (want BMI 18.5-24.9 kg/m²)

DASH Diet

Reduce dietary sodium intake to 2.4 g of sodium a day (approximately 1 teaspoon)

Engage in regular aerobic physical activity such as walking (at least 30 minutes per day most days of the week)

Limit consumption of alcohol to no more than 2 drinks (e.g. 24 oz. of beer, 10 oz. of wine or 3 oz. of 80 proof whisky) per day in most men and no more than 1 drink per day in women and lighter weight men

Medication refer to page 8

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SUBSEQUENT MONITORING OF BLOOD PRESSURE AT OFFICE VISIT

Blood pressure should be measured in such a manner that values obtained are representative of patients' usual levels. The following techniques are recommended:

1. Patients should be seated with their arm bared, supported and at heart level. They should not have smoked or ingested caffeine within 30 minutes prior to the measurement.
2. Measurement should begin after five minutes of rest.
3. The appropriate cuff size must be used to ensure an accurate measurement (arm circumference range at midpoint): pediatric cuff less than 9 inches; regular cuff 9 to 13 inches; large cuff > 13 to 17 inches; and adult thigh cuff > 17 inches. The bladder should nearly (at least 80%) or completely encircle the upper arm (above elbow).
4. Measurements should be taken with a recently calibrated aneroid manometer or a calibrated electronic device.
5. Measurements should be taken in the arm with higher SBP which was previously documented in the patient's chart.
6. If the blood pressure for SRP is ≥ 130 and/or DBP ≥ 80 , repeat blood pressure measurement in 10-15 minutes. Record the lower of the two blood pressures measurements.

Does patient have a history of congestive heart failure, myocardial infarction, angina, cardiac stent or coronary artery by-pass surgery?

No

Yes

Micro or macroalbumenuria

Beta blocker and ACEI or ARB if no contraindications.
Use metoprolol or carvedilol if patient has CHF (see CHF protocol) for dosing of Beta blockers, ACEI or ARB.

No

Yes

Refer to page 9

BP < 130/80

Yes

No

Continue to monitor blood pressure at each office visit
Refer to page 7

Contraindication to ACEI

No

Yes

Begin ACEI
Maximize dose if BP not < 130/80

Measure BMP 1 week after starting or increasing ACEI

Intolerant of ACEI

No

Yes

BP < 130/80

Contraindication to ARB

Yes

No

Yes

No

Measure BMP 1 week after starting or increasing ARB

A1c Ratio ≥ 30

Refer to Page 9

Begin ARB
Maximize dose if BP not < 130/80

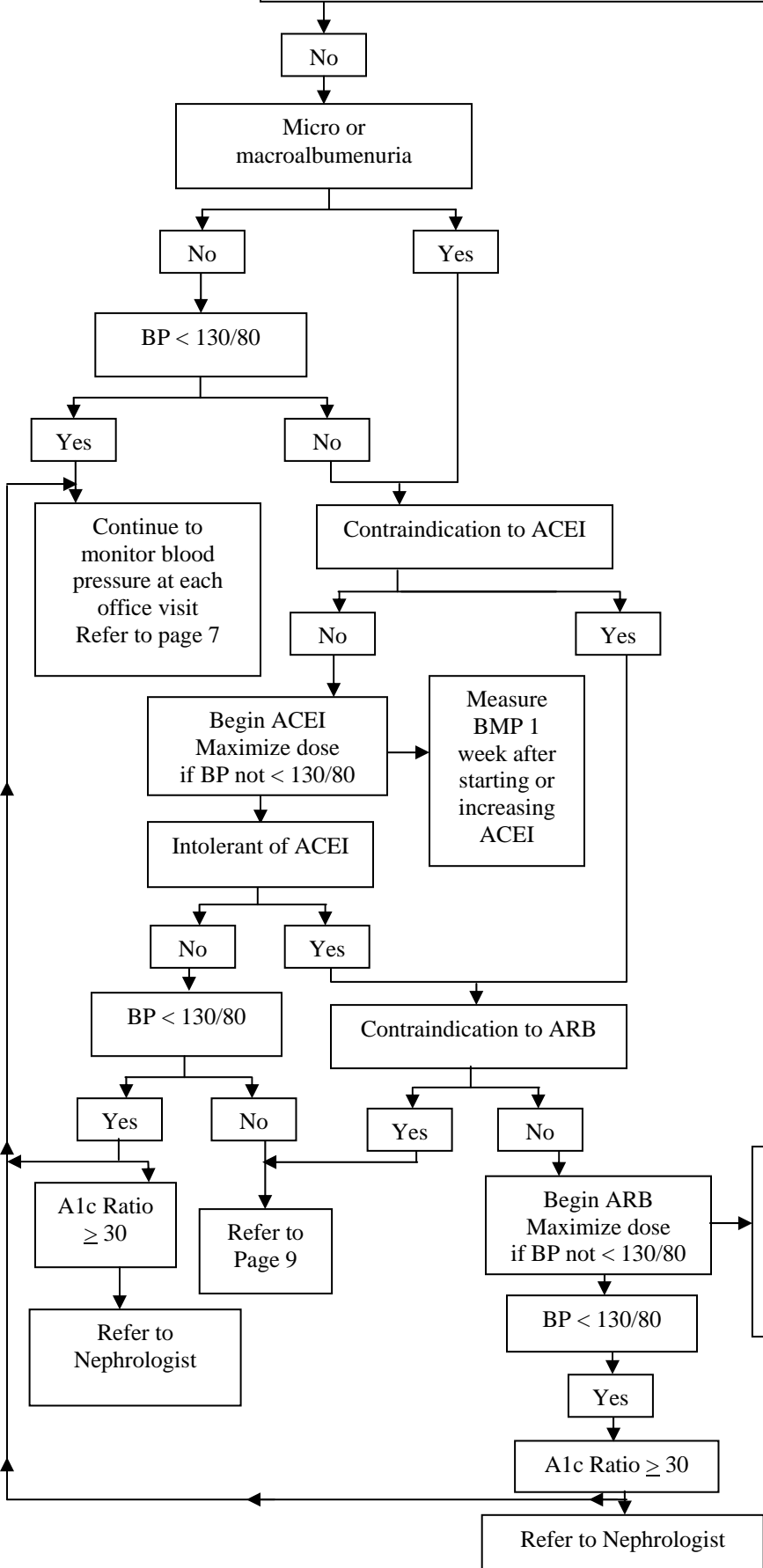
BP < 130/80

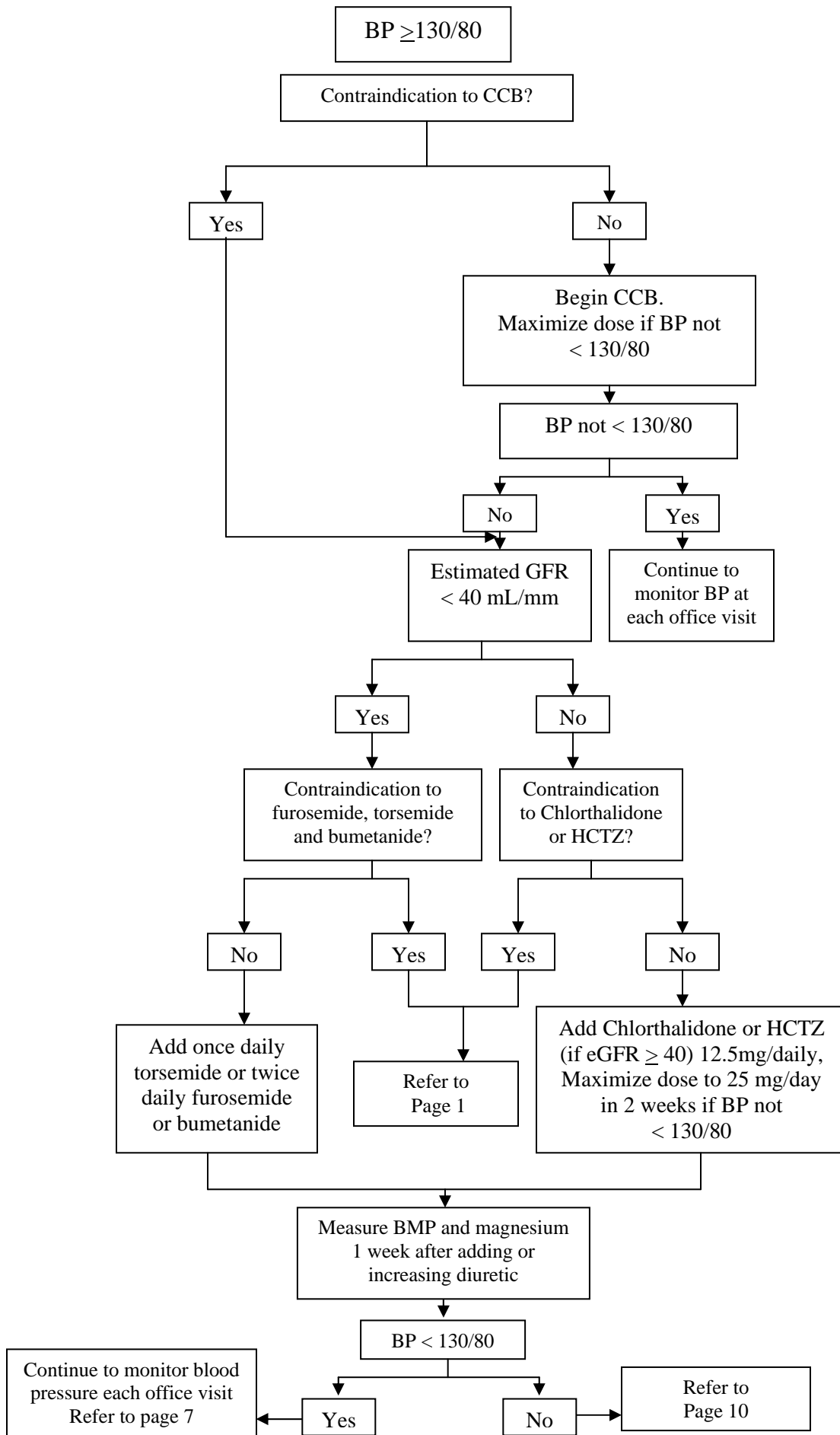
Yes

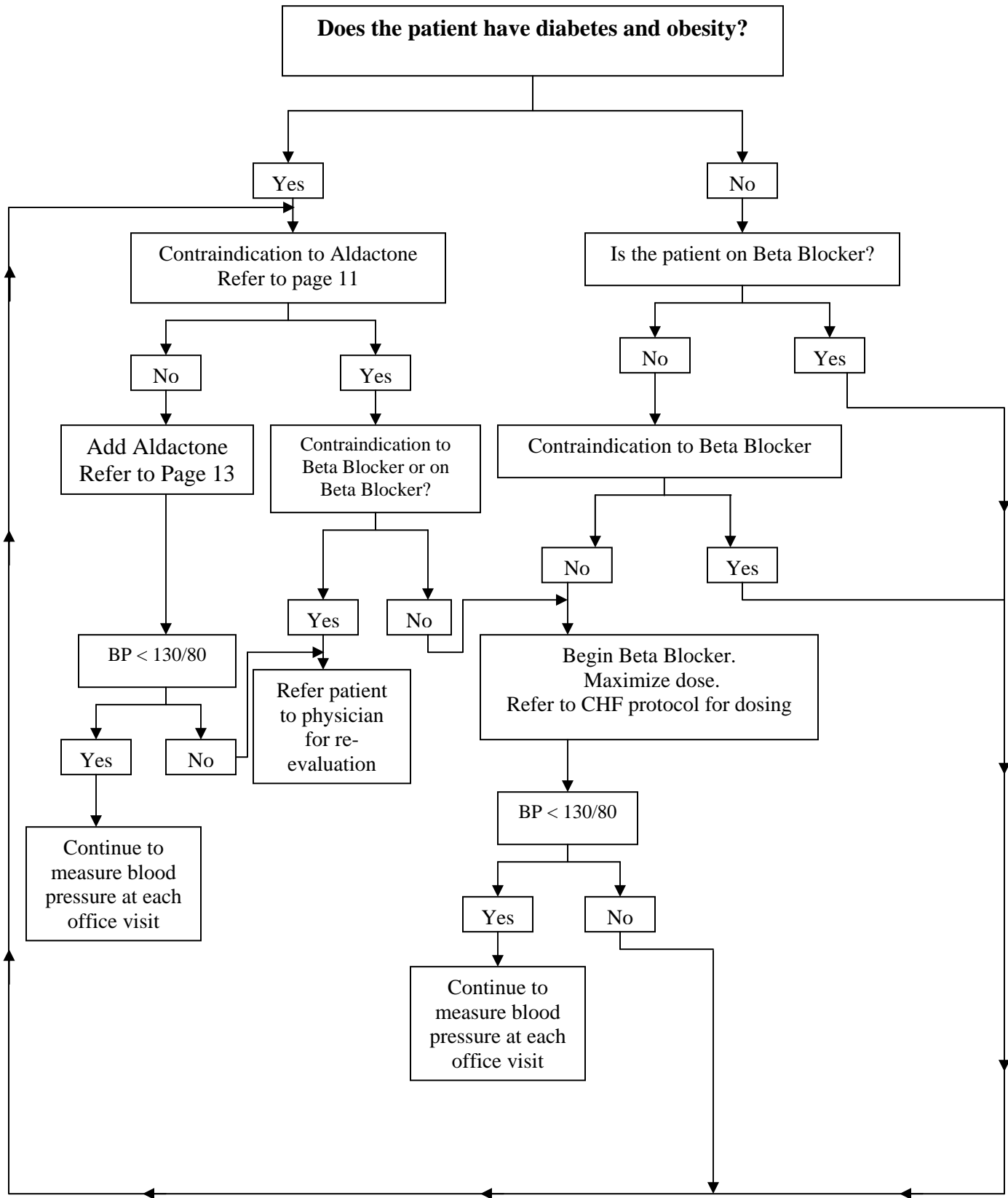
A1c Ratio ≥ 30

Refer to Nephrologist

Refer to Nephrologist







Aldosterone Antagonists

