Stroke Case

You are a stroke physiatrist working in a rehabilitation hospital in a major city. A community hospital has contacted you to see if one of their patients can be transferred to your facility for rehabilitation since their hospital does not have a dedicated stroke rehabilitation unit. Your admissions coordinator is asking you if you will accept this patient, of if you need more information to make that decision.

You are sent the following information:

Mr. B is a 45 year old man who had a right thalamic hemorrhagic (based on CT head stroke protocol) stroke 1 week ago. Neurology was consulted and suspects the stroke is due to untreated hypertension. Blood pressure was 200/80 on admission. He was on labetalol intravenous initially, and blood pressure is trending down. Mr. B was previously healthy and took no medications. He has no family doctor, and he has not seen a doctor in 20 years. His stroke deficits include predominantly dense left hemiparesis (face/arm/leg). His wife and the team do not notice any cognitive or language changes. He is motivated to participate in intensive rehabilitation.

HbA1c = 5.5
LDL = 1.5
BP = now < 150/90 (138-148/81-89 over last 7 days)
Echo = mild right ventricular hypertrophy; negative for thrombus, bubble study negative for PFO, EF 65%.
Holter = 48h telemetry negative for arrhythmia
CT/CTA Stroke Protocol – no significant large vessel atherosclerotic disease; no visible underlying vascular abnormality; no micorangiopathic disease, no previous strokes
Serial CT's – hemorrhage size is reducing; no significant edema or midline shift

SHx:
He is married with 3 children ages 10, 8, and 5. His wife is very supportive but has some caregiver burnout due to managing family needs and working full time as a teacher. Mr. B previously drank 2 beers per day on average. Smoked 10 cigarettes per day since age 16. Has never used recreational drugs.

Medications:
Perindopril 4 mg daily
Indapamide 1.25 mg daily
Amlodipine 5 mg daily

1. **What questions do you want to ask the community hospital about Mr. B to ensure he is appropriate for inpatient rehabilitation?**

- **Activities of Daily Living (ADLs)?:** right handed with left sided weakness. 1 person assist for dressing, transfers with ceiling lift, eating with set-up, bed baths only, not toileting – wearing incontinence briefs, starting to sit in wheelchair in hospital – not mobilizing it on his own.
- **Social History?:** Speaks English, Completed Highschool and works in a factory; 2 level home – 7 stairs to front door, 15 stairs to second level, bathroom and bedrooms on second level, no bathroom on main level; Wife is a teacher (actively working).
- **Previous functional status?:** completely independent without an ambulation aid, assisted with all IADLs (cooking, cleaning, grocery shopping, laundry, finances) at home. Drives.
- **Repatriation?:** Referring hospital will take him back if he is not able to return.
- **Communication?:** Mild left lower facial droop, mild dysarthria.
- **Swallowing?:**, dysphagia - minced diet and thickened fluids.
- **Pain**? – moderate pain in left arm and leg – just started pregabalin 50 mg bid.
- **Mood**? – low mood.
- **Cognition?:** MOCA – 29/30 (lost 1 point for delayed recall).

2. **You have accepted Mr. B for inpatient rehabilitation. He and his wife are very interested to know about risk factors for stroke. They were told he likely had a stroke due to "high blood pressure" but they want to know about any other risk factors. Any other information you would like to ask them to determine Mr. B's risk factors?**

Stroke Risk Factors mentioned in history:

1) HTN
2) Alcohol: Drinks 2 beers per day on average.
3) Smoking: smoked 10 cigarettes per day since age 16. Stopped since being in hospital.

Other questions to determine risk factors:

- **Family history:** Mother and father have history of hypertension (treated with medication) but no family history of strokes; no cardiac history in family; 2 healthy siblings ages 35 and 32 who live in Canada but in another province.
- **Previous history of stroke/TIA:** He has never had a TIA or previous stroke.
- **Body Mass Index (BMI):** BMI is 30.
- **Sleep Apnea:** His wife says that he snores loudly at night and gasps sometimes; Mr. B does not have morning headaches and feels refreshed after sleeping.
- **Exercise:** Works in a factory and does heavy lifting but otherwise does not exercise regularly.
- **Diet:** Likes eating meat and potatoes. Does not like eating vegetables or fruit. Drinks soda, potato chips on weekends.
- **Stress:** financial stressors at work – high chance of being laid off due to factory being bought by another company and rumors of factory eventually closing.

There was a waitlist to come into your rehabilitation centre. He is being admitted to your unit today. Mr. B is now 4 weeks post stroke. The speech therapist assessed swallowing and he no longer has dysphagia. He was upgraded to soft texture diet with thin fluids. The speech therapist also reports no communication issues.

He has some uncomfortable paresthesias in his left arm and leg. He is not sure if pregabalin 50 mg bid is helping (started 3 weeks ago). He has a flat affect and is expressing how stressed he is regarding not being able to provide for his family. He tells you “My wife is really burnt out and we don’t have any other family to help”. He is tearful when talking to you. He is concerned about his finances while not being able to work.

Physical Exam:
Appearance: flat affect
Cranial Nerves: mild left facial droop with dysarthria; otherwise normal; no visual inattention
Left Upper Limb: Shoulder shrug 3/5, deltoid 3/5, Elbow flexion 3/5, wrist flexion/extension 0/5, Finger flexion/extension 0/5.
Left Lower Limb: Hip flexion 3/5, Knee extension 3/5, ankle dorsiflexion 3/5, ankle plantar flexion 3/5, great toe extension 3/5
Increased flexor tone left upper limb and increased extensor tone left lower limb – Modified Ashworth scale 1+

Hyperrefexia – in left upper and lower limb
No clonus at ankles
Plantar responses equivocal bilaterally
Normal light touch, pinprick sensation, and proprioception bilaterally
No obvious cerebellar ataxia (reduced left sided coordination consistent with weakness)
Some pain rated 6/10 reported in left upper and lower limb at rest and not worsened with passive movement

3. **List all of the issues that may be contributing to Mr. B's low mood that you want to address as a rehabilitation team?**

Neuropathic Pain Sleep (possible sleep apnea) Stressors/Adjustment (Job insecurity, financial stress, caregiver stress with young children) Post-stroke depression and/or anxiety

4. **What is your management plan to address risk factors for stroke, mood, and his social situation? Include which therapists or referrals you want to make. At your hospital, you have to put in an order for patients to see allied healthcare.**

1) Depression Screening and consider pharmacotherapy – need to weigh risk of antidepressants and potential bleeding risk
2) Pain – Pain management strategies (pharmacological and non-pharmacological)
3) Recreational therapy/Music therapy– as appropriate and available
4) Spiritual care – as appropriate and available
5) Employment Insurance form, Short Term Disability Form, Disability Tax Credit (as appropriate)
6) Social work referral for resources to assist family (eg. Mr. B's wife may be eligible for Employment Insurance Caregiver Sickness Benefit)
7) Dietician referral
8) Overnight Oximetry screening and/or consideration of sleep study (as appropriate and available)
9) Education – regarding stroke prevention; eg. educate that hypertension may run in family and siblings should be screened for hypertension
10) Physiotherapy – for mobility
11) Occupational Therapy – for ADL management
12) Speech and Language Pathology - for dysarthria; screen swallowing and treat accordingly
13) Hypertension Management - Increase antihypertensives to target BP <130/80 mmHg; monitor electrolytes, Creatinine with change in diuretic or ACEi
14) Consider screening for Obstructive Sleep Apnea if available

Reference: Canadian Stroke Best Practices