PHA-6020

CVA – Stroke ANSWERS

CVD Clinical Workshop 4

Learning Outcomes

By the end of this workshop you will be able to:

- Explain the rationale for the safe and effective therapeutic use of drugs commonly used in the treatment of cerebrovascular disease.
- Interpret individual patient data in order to identify and recommend appropriate pharmaceutical and non-pharmaceutical interventions for the treatment and prevention of cerebrovascular disease.
- Counsel patients on the safe and effective use of warfarin and DOACs.

Pre-workshop task:

- Complete the independent study pack.

Resources

You will need to refer to the following to complete application exercise 1:

www.medicinescomplete.com

Login via 'Shibboleth/Open athens' – select 'UEA' – login using your UEA login.

You will need: Drug administration via enteral feeding tubes.

Instructions:

- In your groups, **complete the 10 MCQ questions** using the scratch card.
    - Whole class discussion about the questions.

- In your groups, **review the drug history, medical notes and drug chart** for your patient.

- **Task 2 - Complete the tables to indicate the <u>therapeutic and toxic monitoring parameters</u> for each of the prescribed drugs**.

- **Task 3 - Identify actual and potential pharmaceutical care issues** for your patient. <u>Document the issue and the actions required</u>. (Please remember that for any new drug you recommend/start, you will need to complete a new monitoring parameter table).

- **Task 4** - Once all pharmaceutical care issues have been identified and documented, decide which **TWO** pharmaceutical care issues are your **priority issues** – those that you would deal with first. You will be required to justify your team decision during feedback.

<u>Scenario</u> -
You are the ward pharmacist reviewing a new patient's drug chart and medical notes first thing in the morning.

Mr GB brought in his own medication, and along with a discussion with the patients wife, your clinical pharmacy technician has documented his drug history. Mr GB was admitted this morning.

Drug History:

Patient Name GB	Hospital no. *890098*	Date Today
Sources Used (circle) Patient / Patient's relative / Patient's own medicines / GP repeat list / Summary Care Record		
Allergies/Sensitivities (Including the nature of the allergy/sensitivity): Penicillin - Rash		
Regular Medications (complete for all medications including OTC preparations)		
Drug Name, Dose, Frequency and Route		**Comments**
1. Bendroflumethiazide 2.5mg tablet - 1 OD		Mrs B reports that he doesn't always take doesn't see the point of 2 BP meds.
2. Felodipine MR 5mg tablet – 1 OD		
3. Morphine sulphate MR 20mg tablet – 1BD		
4. *Remegel® (buys OTC for dyspepsia) – 1 PRN*		
Acute medications		
Drug Name, Dose, Frequency and Route		**Comments**
Medicines management pre-admission	Patient	Other (state)……
Compliance aids Pre-Admission (circle) None / Medication Chart / MDS (Dossett / NOMAD / Mediwallet) / Large print labels / MAR chart		
For MDS state device:	MDS filled by; Patient / Community Pharmacy	
Drug History Completed By: *R Addison*, Clinical Pharmacy Technician		

Patient medical notes, drug chart:

Patient:	*Mr GB*
Hospital number:	*890098*
DoB:	*28/1/1955*
Address:	*180 Hills Road, Flatplace*

Allergies: *Penicillin*
Weight: *108kg*

Occupation: *Retired builder*
SH -
Alcohol: *approximately 12 units/week*
Smoking status: *20 cigarettes a day*

PMHx: *Hypertension (Feb 2015)*
Chronic back pain
Dyspepsia

DHx: *Bendroflumethiazide 2.5mg od*
Felodipine MR 5mg od
MST 20mg bd

PC: *Unable to use left side with difficulty speaking.*

HPC: *Patient last seen well 16 hours ago (4 pm yesterday) when wife left home to baby sit the grandchildren. Patient found upon her return at 8am slumped on the kitchen floor.*

OE: *Obese.*

BP:	*160/100 mmHg*
Temperature:	*36.8 degrees Celsius*
Pulse:	*145 BPM (apex), irregularly irregular*

Cr, U&E, FBC, glucose, LFT – NAD
NIHSS 17

ECG – Atrial fibrillation
CT scan – no haemorrhage present.

Δ *Ischaemic CVA secondary to AF.*

Plan *STAT dose aspirin 300mg*
Transfer to stroke ward
Refer to SALT

UEA Training Prescription Chart

Number of drug charts in use: 1

Date	Surname	Forename	Sex	D/O/B	Hosptial No.	Weight (kg)	Height (cm)	Surface Area (m^2)	SAM?
Day 1	B	G	M	28/01/1955	890098	108 Estimate / Actual			Yes / No

Ward/ward change:	Stroke	Patient address:	180 Hills Rd, Flatplace
Consultant(s)	AN Doctor		

DRUG SENSITIVITIES/ALLERGIES MUST BE ENTERED. If no allergies/sensitivites you must write 'NKDA' and sign and date.

Medicine/Substance	Description of allergy/sensitivity	Signature	Date
Penicillin			

PRE-MEDICATION AND ONCE ONLY DRUGS

Pharm	Date	Drug (approved name)	Dose	Directions/ route/ other	Time to be given	Signature	Administered by: Initials	Administered by: Date
	Day 1	Aspirin	300mg	PO STAT	09.15	AN Doctor		

Thromboprophylaxis Risk Assessment

Drug thromboprophyaxis recommended				
Drug thromboprophlaxis NOT recommende	X			

Prescribing

- Write clearly in black, indelible ink.
- Use approved drug names.
- All prescriptions must be signed and dated.
- If a drug is to be intentionally omitted by a prescriber or pharmacist, indicate this with an 'X' in the drug administration box.
- If a drug is being stopped, or a dose altered, draw a line through the whole prescription, sign and date.
- Doctors to re-write charts as required. Start dates should be transferred to new chart. Include cross-reference to drugs on other charts.

Drug omissions

If a drug is omitted, one of the below codes must be entered into the drug administration box.

1. Nil by mouth
2. Not required
3. Patient refused
4. Drug unavailable
5. Vomiting/nausea
6. Patient off ward
7. No IV access
9. Contra-indicated
8. Other - reason must be recorded in notes

Self administration of medicines (SAM)

If a patient is suitable for SAM they can initial in the relevant drug administration box or a nurse can write 'SAM' in the box.

Prescribers

Signature	AN Doctor
Bleep no.	5893
Print name	AN Doctor
Signature	Dr Jones
Bleep no.	3210
Print name	KE Jones
Signature	
Bleep no.	
Print name	
Signature	
Bleep no.	
Print name	
Signature	
Bleep no.	
Print name	

Pharmacy codes

Pharm: Signature confirms checked/date

TTO ✓ = from locker; H = at home; R = relabel; ★ = new supply at discharge

Supply: S = ward stock; T = dispensing, see date and quantity; P = POD, see date and quantity

Version 001-19

REGULAR MEDICINES 1

CHECK PAGE 1 FOR ALLERGY STATUS

Tick box to indicate time of admission or add other times ↓ / Date →				Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10
1. Drug (approved name): Bendroflumethiazide	Start date: Day 1	End date	06:00										
			08:00	✓	X								
Dose: 2.5mg	Route: Po	Frequency: OD	12:00										
			14:00										
Indication	Pharm check		18:00										
			22:00										
Prescriber's signature: AN Doctor	Supply		00:00										
2. Drug (approved name): Felodipine MR	Start date: Day 1	End date	06:00										
			08:00	✓	X								
Dose: 5mg	Route: Po	Frequency: OD	12:00										
			14:00										
Indication	Pharm check		18:00										
			22:00										
Prescriber's signature: AN Doctor	Supply		00:00										
3. Drug (approved name): MST	Start date: Day 1	End date	06:00										
			08:00	✓	X								
Dose: 20mg	Route: Po	Frequency: BD	12:00										
			14:00										
Indication	Pharm check		18:00	✓									
			22:00										
Prescriber's signature: AN Doctor	Supply		00:00										
4. Drug (approved name)	Start date	End date	06:00										
			08:00										
Dose	Route	Frequency	12:00										
			14:00										
Indication	Pharm check		18:00										
			22:00										
Prescriber's signature	Supply		00:00										
5. Drug (approved name)	Start date	End date	06:00										
			08:00										
Dose	Route	Frequency	12:00										
			14:00										
Indication	Pharm check		18:00										
			22:00										
Prescriber's signature	Supply		00:00										

CHECK PAGE 1 FOR ALLERGY STATUS

AS REQUIRED DRUGS

CHECK PAGE 1 FOR ALLERGY STATUS

1. Drug (approved name) *Paracetamol*		Start date Day 1	Date										
Dose 1 g	Route Po	Max Frequency QDS PRN	Time										
Indication		Pharm check	Dose										
			Route										
Prescriber's signature *AN Doctor*		Supply	Given by										
2. Drug (approved name)		Start date	Date										
Dose	Route	Max Frequency	Time										
Indication		Pharm check	Dose										
			Route										
Prescriber's signature		Supply	Given by										
3. Drug (approved name)		Start date	Date										
Dose	Route	Max Frequency	Time										
Indication		Pharm check	Dose										
			Route										
Prescriber's signature		Supply	Given by										
4. Drug (approved name)		Start date	Date										
Dose	Route	Max Frequency	Time										
Indication		Pharm check	Dose										
			Route										
Prescriber's signature		Supply	Given by										
5. Drug (approved name)		Start date	Date										
Dose	Route	Max Frequency	Time										
Indication		Pharm check	Dose										
			Route										
Prescriber's signature		Supply	Given by										

CHECK PAGE 1 FOR ALLERGY STATUS

AS REQUIRED DRUGS CONTINUED

CHECK PAGE 1 FOR ALLERGY STATUS

6. Drug (approved name)		Start date	Date										
Dose	Route	Max Frequency	Time										
Indication		Pharm check	Dose										
			Route										
Prescriber's signature	Bleep no.		Given by										
7. Drug (approved name)		Start date	Date										
Dose	Route	Max Frequency	Time										
Indication		Pharm check	Dose										
			Route										
Prescriber's signature	Bleep no.		Given by										

COMMUNICATION BOARD

Factors affecting drug selection/dosing (please tick):	Renail impairment		Pregnancy	
	Liver impairment		Breastfeeding	

TO HELP YOU:

Questions to consider when evaluating patient and identifying pharmaceutical care issues,
(Remember to work methodically and cover all aspects of the patient's care (i.e. consider acute and chronic management)

1. What risk factors does Mr GB have for developing a stroke that may require management?

2. Has initial pharmacological treatment been provided appropriately?

3. What is a SALT referral and what is it used for?

4. What are the pharmaceutical care issues associated with the outcome of the SALT review? (**You need to consider how you would manage the different potential outcomes for acute and chronic management**).

5. What could be used to treat ischaemic stroke in the acute phase, and would they be suitable for Mr GB?

6. Are his concomitant conditions being treated appropriately at this time? Why is this important?

7. What are your long-term pharmacological treatment options and which one(s) would be appropriate for Mr GB?

8. What are the pharmaceutical care issues associated with his future discharge?

Task 1 - Monitoring parameters – Complete the below tables for the prescribed medication.

Drug: Bendroflumethiazide	Indication: Hypertension
Monitoring parameters	
Therapeutic	Toxic
BP (target pre-stroke for what it was prescrbed– 140/90)	Renal function, U&E's (K^+ / Na^+/ mg $^{2+}$ / Ca^{2+}), glucose, Lipids, urate, BP

Drug: Remegel (800mg calcium carbonate)	Indication: Dyspepsia
Monitoring parameters	
Therapeutic	Toxic
Relief of dyspepsia symptoms	Interactions, Calcium, symptoms

Drug: Felodipine MR	Indication: Hypertension
Monitoring parameters	
Therapeutic	Toxic
BP	BP, Flushing, swelling of ankles

Drug: Morphine sulphate MR tablets	Indication: Chronic back pain
Monitoring parameters	
Therapeutic	Toxic
Pain score/patient report	Respiratory rate, constipation, renal function, drowsiness, N&V, rash

Task 2 - Pharmaceutical care issues and management – Document your identified pharmaceutical care issues in the tables below.

Issues	Action required
Patients dyspepsia treatment not considered in the drug history.	Ensure this is documented as a discrepancy in the medical note documentation relating to the medicine reconciliation at admission. Consider during treatment, see below.

Issues	Action required
Patient allergy documentation incomplete, missing reaction to penicillin.	Ask the patient/patient's wife what happens when penicillin is administered. Document details of the reaction on the drug chart and in

	the medical notes.

Issues	Action required
ACUTE **Patient should not be on their antihypertensive therapy until stabilised and ongoing need established. Slightly increased BP can improve perfusion.**	**Ask Dr to stop patient's current antihypertensive treatment (bendroflumethiazide and felodipine-would not be able to be given as MR) and monitor patients BP.**

Issues	Action required
ACUTE **Determine whether the patient has had their SALT assessment and the outcome, to determine how medication can be administered.**	**Determine information from the doctor or SALT.** **The outcome of this was that the patient had failed their SALT assessment and were going to have an NG tube inserted.**

Issues	Action required
ACUTE **MST continus tablets are a modified release morphine tablet, due to its formulation it cannot be crushed for administration down an NG tube.** **Remegel is an OTC indigestion preparation which is not appropriate for administration down an NG tube.**	**Ask Dr to stop MST continus tablets.** **Ensure prescriber aware of the patients use of Remegel prior to admission.**

Issues	Action required
There is a need to determine how severe the patients back pain is/how well controlled it was with their current medication.	**If it was well controlled, an equivalent dose of analgesic appropriate for administration down an NG tube, i.e. morphine sulphate oral solution 10mg/5mL – 5mg every 4 hours or Zomorph capsules, opened and mixed in water. You would also provide some PRN morphine sulphate for any break-through pain (1/6th to 1/10th of he dose), monitor the use and pain score to determine whether higher regular doses were required. Addition of regular paracetamol 1g QDS effervescent tablets via the NG tube would be appropriate as per the WHO pain ladder.**

	Speak to doctor to make amendments as described above.

Monitoring parameters	
Therapeutic	**Toxic**
Morphine sulphate oral solution/zomorph capsules: **Pain score/patient report** Paracetamol: **Pain score/patient report**	**Respiratory rate, constipation, renal function, drowsiness, N&V, rash** **LFT, weight, renal function, timing**

Issues	**Action required**
ACUTE **Did the patient receive the aspirin 300mg STAT dose and was it administered appropriately?**	**Review drug chart to determine (speak to nursing staff) if administration correct. It is important to give the aspirin dose as quickly as possible (after confirmation that there has not been a haemorrhage). It will take time for a SALT review and even after that it would take time for an NG tube to be fitted. For this reason, it would be important for the aspirin to be given via an appropriate alternative route. Aspirin exists as 300mg suppositories which would enable the dose to be given without relying on oral administration at all. Ensure STAT prescription is changed to enable this administration if the dose has not been given.** **Ensure the aspirin 300mg OD PR or PO effervescent (once NG tube in place) is prescribed. Patients with large disabling strokes should receive aspirin 300mg OD for '14 days' (see below for more detail) before being converted onto an appropriate long-term antithrombotic (see below for detail based on the patients other condition).** **(For patients with reduced risk factors for haemorrhagic transformation (smaller infarct size and/or not cardioembolic) the change to long term antithrombotic therapy may happen before the full 14 days of aspirin treatment, i.e. when discharged home from hospital).**

Monitoring parameters	
Therapeutic	**Toxic**

Long term prevention of CV events	Signs of bleeding, GI irritation, Hb

Issues	Action required
Mr GB has a history of dyspepsia and has now been given a '2 week' course of aspirin. NICE NG128, indicates the use of a PPI.	Discuss with Dr and ask them to prescribe a PPI, i.e. lansoprazole 15mg OD orodispersible.
Monitoring parameters	
Therapeutic	**Toxic**
Prevention of dyspepsia	Magnesium, gastric infection, GI S/E, fractures, LFTs

Issues	Action required
Patient is newly diagnosed with AF (time of onset unclear). They should be started on treatment to control their AF as per NICE CG 196.	Ask the Dr to prescribe bisoprolol (cardioselective) 5mg OD. Monitor BP and pulse, increase dose if HR not controlled.
Monitoring parameters	
Therapeutic	**Toxic**
Apex pulse (controlled heart rate approx. 60 bpm)	BP, pulse (bradycardia), respiratory rate (bronchospasm), glucose (hypoglycaemia and masked symptoms)

Issues	Action required
Long term secondary prevention - After the initial acute management (discussed above) - Monitor Mr GB's BP (it would generally fall but possibly not to what we are aiming for, especially as the patient was hypertensive before admission) and consider initiation of treatment if systolic >130mmHg. This may or may not be required as patient has been started on a beta-blocker (which will lower BP) for control of his AF.	Consider re-initiation of felodipine 5mg MR (if swallowing issues resolved) or amlodipine 5mg OD (to be administered via the NG tube). Monitoring required. If BP remains high, increase the dose to 10mg. If BP still not controlled below systolic 130mmHg, add an ACE-I or ARB, i.e. perindopril 2mg OD
Monitoring parameters	
Therapeutic	**Toxic**
ACE-I: BP (130/80)	BP, U&E (K+), renal function, S/E dry cough, lack of taste etc., LFTs

Thiazide like diuretic: **BP (130/80)**	**Renal function, U&E's (K^+ / Na^+/ mg $^{2+}$ / Ca^{2+}), glucose, Lipids, urate, BP**

Issues	Action required
Long term secondary prevention - **Patient should be initiated on statin therapy <u>at least 48 hours</u> after the acute stroke for the secondary prevention of further strokes.**	**Ask the Dr to prescribe atorvastatin 80mg OD. Plus, diet and lifestyle interventions – diet, activity, weight, alcohol, smoking (all relevant to this patient – see below).**
Monitoring parameters	
Therapeutic	**Toxic**
Long term prevention of CV events (fasting LDL to below 1.8 mmol/L), lipid profile	**LFTs, CK, myopathy, Counselling**

Issues	Action required
Long term secondary prevention - **After initial '14 days' of aspirin 300mg, patient should be initiated on long-term antithrombotic treatment with an anticoagulant to reduce the risk of another stroke due to the AF.** See pre-workshop study pack for additional detail on initiation of anticoagulation based on infarct size and relating to risk of haemorrhagic trans formation.	**Ask Dr to prescribe warfarin or a DOAC because the patient has AF (suggest name and starting dose, i.e. Edoxaban 60mg OD)** **Stop aspirin.**
Monitoring parameters	
Therapeutic	**Toxic**
DOAC general – see individual drugs for further detail: **Longterm prevention of clot formation/CV event**	**Signs of bruising and bleeding (Haemoptysis, haematuria, haematemesis, unexplained/extensive bruising), Hb**

Issues	Action required
Appropriate counselling required for all newly started medication.	**Counselling on all new medication - name, strength, dose, frequency. Any appropriate additional information, i.e. reporting muscle pain with statin use etc.** **Especially important for anticoagulant therapy. Need to ensure patient has all**

	required information, i.e. yellow book or DOAC patient information. See workshop 5 – important points from your counselling lists.
Adherence issues as identified from DHx	**Discuss importance of medication (anticoagulant, statin, BP) use with patient and carer. Reinforce the need for potentially multiple BP medications (as highlighted as the issue previously (DHx)) and that we are wanting optimum control of BP.**
Dependent on the patient's condition at the time of discharge appropriate discharge planning is required to ensure Mr GB can received his required treatment when he is discharged from hospital.	**Discharge planning – Ensure you know where the patient is being discharged to and what care is in place. Provide the relevant carer patient information regarding medications.**

Issues	Action required
Long term secondary prevention - **Patient smokes 20 cigarettes a day. Smoking increases your risk of stroke.**	**Discuss reduction/cessation of smoking. Determine the patient's stage of change and respond appropriately to this. If indicated discuss assistance to smoking cessation in the form of NRT.**
Patient is obese. Obesity increases your risk of stroke and MI.	**Discuss healthy diet – 5+ fruit and vegetables per day, decreased saturated fat and cholesterol intake, appropriate exercise – mobilisation around the house, gardening, cleaning as appropriate to the patient's ability. Discuss weight loss.**

Issues	Action required
Long term secondary prevention - **Potential for continued issues with swallowing.**	**Consider appropriate treatments as discussed for this patient:** **If the secondary prevention is required to go down an NG tube the following information may be helpful (remember to always use an up-to-date appropriate resources such as 'Handbook of drug administration via enteral feeding tubes' or 'The NEWT guidelines'):** **Amlodipine, Lisinopril, bendroflumethiazide, atorvastatin, warfarin – can be crushed and**

	dispersed in water. **Apixaban – Swallowed with water, with or without food. Can be crushed.** **Edoxaban – Can be taken with or without food. Can be crushed.** **Dabigatran – Do not crush. The oral bioavailability may be increased by 75% after a single dose. Can be taken with or without food.** **Rivaroxaban – Should be taken with food. Tablet can be crushed.**

Task 3 - Priority issues

Please document your two priority issues below. Be prepared to discuss your discussions during feedback.
1. NBM (from the time of suspecting stroke) /SALT assessment required (so patient will not receive any medication orally including their antihypertensive therapy)
2. Aspirin 300mg ASAP (PR) - (then for '14 days'-see details of when it may not be for a full 14 days)