Canberra Hospital and Health Services

Medical - in - Confidence

Neurology

(Discharge Summary)

To:
Discharged To: Home

First Admitted: 26/09/2018 01:41

Discharge Date: 03/10/2018 17:30
Ward/Location: L7A
Discharge Method: Nursing Home/Aged Care Service

Encounter History

Episode	Admission Date	Discharge Date	Episode Type	Discharge Unit	Discharge Doctor	Discharge Destination
51691620	26/09/2018 01:41	03/10/2018 17:30	Inpatient Service	Neurology		Home

Discharge Location
has been discharged from: The Canberra Hospital

Primary Discharge Diagnosis
Left cerebellar and pontine infarction

Additional Diagnosis
E coli UTI
Low vitamin B12
Steroid induced Gastroesophageal Reflux Disease

Presenting History & Symptoms (including reason for encounter)
73F presents with right hemiparesis + mixed aphasia on BG of VP shunt insertion March 2018 for NPH.

Past Medical History
1. Normal pressure hydrocephalus
2. T2DM
3. Rheumatoid arthritis
4. Incontinence
5. Hyperlipidaemia
6. SDH - 03/18
- VP shunt inserted 2018
7. Humerus fracture 2017
8. Left shoulder replacement

SHx
- lives in high level care nursing home
- mobilises with assistance and 4WF

Summary of Investigations / Observations
See above/below

Summary of Management
Admitted to General Medicine:
Workup: fasting bloods, CTB, MRI, bloods, holter
Commenced on a statin and aspirin
- antihypertensive contraindicated given generally low SBP 110-130
Nursing care and ward rehabilitation

Regular ward rounds:
- neurological symptoms improved during admission
- progressive functional recovery to baseline

Ongoing allied health input:
Speech therapy:
- discharged from service on full diet as tolerated

Physiotherapy:
- functional improvements back to baseline by the time of transfer home
- walking with min assist and 4WF

ISSUES

Left pontine infarct:
- CTB - nil acute pathology - some enlargement of ventricles
- VP shunt series XR - shunt in stable position
- discussion with neurosurgery - while some enlargement of ventricles, no intervention required to shunt settings.
- MRI - Acute infarct in the left paramedian pons, with equivocal appearance for further punctate focus of ischaemia in the left cerebellar hemisphere
- Carotid Doppler - NAD
- Holter monitor - not completed before discharge, but given area of stroke and contraindication to anticoagulation after recent SDH, not required as outpatient.
Transfer of care to Neurology - Prof Lueck on 28/9

E coli UTI:
- treated with oral cephalexin for 5 days

Low B12
- found on routine bloods workup
- given 1000mcg hydroxycobalamin injection daily for 7 days
- to continue weekly injections for one month
- to continue bimonthly injections definitely

Steroid induced GORD:
- ongoing epigastric pain in setting of long term low dose steroids, presumed reflux as likely cause
- commenced on ranitidine 150mg PO mane

Diarrhoea:
- multiple samples taken with no microbiological cause identified
- likely caused by high metformin dose
- dose changed to 2g XR once daily with good improvement

Pending Results / Investigations for GP to Follow-up
see above/below

Ongoing Issues / Recommendations to GP
Dear Doctor,

Thank you for your ongoing care. Please be aware of the following:

1. They will follow up with you in 3-5 days to review their progress and medications.
2. They have been prescribed aspirin 100mg PO mane, atorvastatin 40mg PO nocte, ranitidine 150mg PO mane, hydroxycobalamin injections daily until 5/10, weekly for the next month, and bimonthly indefinitely

If you have any queries or concerns, don't hesitate to contact the Neurology team.

Kind regards,

Neurology team at the Canberra Hospital.

Follow-up Required
· Service Requested: GP follow up, Appt made: No, Patient Advised: Yes, Appt Details: 3-5 days

Patient Instructions
Dear

We wish you well for your recovery at home. Please be aware of the following:

1. Please follow up with your GP in 3-5 days for review of your progress and medications.
2. Continue to take your regular medications.
3. Please continue to take aspirin 100mg once daily, vitamin b12 injections, atorvastatin 40mg at night and ranitidine 150mg once daily.

If you have another episode, feel generally unwell or are concerned, please seek medical attention promptly or return to the emergency department.

Once again, we wish you the best for your recovery.

Kind regards,

Neurology team at the Canberra Hospital.

Medications on Admission
· methotrexate 20mg PO on Saturdays
· prednisolone 5mg PO mane
· metformin 1g MR PO bd
· folic acid 10mg PO on Sundays
· targin 5/2.5mg PO bd
· paracetamol 1g PO bd
· docusate/senna 2 tabs PO bd prn

Complete List of Medications on Discharge
· aspirin 100mg PO mane (Supply on Discharge), Supply: 5 days
· methotrexate 20mg PO on Saturdays (Supply on Discharge), Supply: Own supply
· prednisolone 5mg PO mane (Supply on Discharge), Supply: Own supply
· metformin 2g MR PO mane (Supply on Discharge), Supply: 5 days
· folic acid 10mg PO on Sundays (Supply on Discharge), Supply: Own supply
· targin 5/2.5mg PO bd (Supply on Discharge), Supply: Own supply
· docusate/senna 2 tabs PO bd prn (Supply on Discharge), Supply: Own supply
· atorvastain 40mg PO nocte (Supply on Discharge), Supply: 5 days
· hydroxycobalamin 1000mcg IM daily (Supply on Discharge), Supply: 3 days, Comments: cease daily dose Friday 5/10. Weekly doses after for 4 weeks, and bimonthly indefinitely
· ranitidine 150mg PO mane (Supply on Discharge), Supply: 5 days

Details of Pre-Inpatient Medications Ceased during this Admission
· metformin 1g PO XR BD, Comments: changed to 2g mane

Allergies / Sensitivities
· Substance: NKDA

Relevant Pathology
Hematology 29/09/2018 06:07 : FBC & General Haem
1.)Image : TOTAL NEUT: is the sum of Neutrophils, Bands, Myelocytes, Metamyelocytes.

CUMULATIVE REPORT

Req No:	P079304	P092216	P096622	P339577	P342990		
Date:	01/03/18	15/03/18	19/03/18	25/09/18	29/09/18		
Time:	09:53	00:05	09:12	14:30	06:07		
Hosp.:	TCH	TCH	TCH	TCH	TCH	Units	Ref Range
ESR				43H		mm/h	1-40
BLOOD COUNT							
Hb	124	127	132	126	128	g/L	115-160
WCC	8.9	13.0H	6.7	8.8	6.0	x10^9/L	4.0-11.0
Plat	299	384	445H	327	307	x10^9/L	150-400
RCC	4.04	4.19	4.28	3.94	4.01	x10^12/L	3.60-5.80
HCT	0.38	0.38	0.40	0.38	0.38	L/L	0.32-0.47
MCV	93	92	93	96	95	fL	80-96
MCH	30.7	30.4	30.8	31.8	32.0	pg	27.0-33.0
MCHC	330	331	330	332	336	g/L	320-360
RDW	14.9H	15.6H	15.5H	16.6H	16.4H	%	11.0-14.5
White Cell Differential							
Tot Neut	6.27	10.30H	3.74	7.00	2.57	x10^9/L	1.8-7.5
Neut	6.27	10.30H	3.74	7.00	2.57	x10^9/L	1.8-7.5
Lymph	1.86	1.38	2.12	1.00L	2.57	x10^9/L	1.2-4.0
Mono	0.60	1.22H	0.64	0.75	0.68	x10^9/L	0.10-1.0
Eos	0.15	0.05	0.15	0.02	0.14	x10^9/L	0.00-0.7
Baso	0.03	0.05	0.05	0.04	0.02	x10^9/L	0.00-0.2 Status: F

Chemistry 29/09/2018 06:07 : Routine Chemistry
1.)Image :

Request No:	P092216	P096622	P339577	P342990	P342994		
Date:	15/03/18	19/03/18	25/09/18	29/09/18	29/09/18		
Time:	00:05	09:12	14:30	06:07	06:07		
Hospital:	TCH	TCH	TCH	TCH	TCH	Units	Ref Range
Fasting:	Unknown	No	Unknown	Yes			
Sodium	138	139	141		141	mmol/L	135-145
Potassium	3.4L	3.6	3.9		3.8	mmol/L	3.5-5.2
Chloride	100	106	107		108	mmol/L	95-110
Bicarbonate	26	22	21L		20L	mmol/L	22-32
Anion Gap	15	15	17H		17H	mmol/L	8-16
Urea	3.4	5.1	4.5		5.6	mmol/L	3.4-9.0
Creatinine	59	63	56		56	umol/L	45-90
Est. of GFR	88L	84L	89L		89L	*	>90
Glucose	9.5H	9.7H	7.5H		5.6H	mmol/L	3.5-5.5
Osmol-calc	287	291	293		292	mOsm/kg	280-300
Bili Tot.	8	4	4		5	umol/L	2-20

ALT	12	9	12	12	U/L	<33
ALKP	115H	124H	54	50	U/L	30-110
New GGT	21	27	25	32	U/L	<56
Protein	70	74	72	69	g/L	60-80
Albumin	39	40	42	40	g/L	33-50
Globulin	31	34	30	29	g/L	24-41
Calcium		2.63H		2.52	mmol/L	2.10-2.60
CorrCalcium		2.69H		2.58	mmol/L	2.10-2.60
Phosphate		0.87		0.88	mmol/L	0.75-1.50
Magnesium		0.73		0.68L	mmol/L	0.70-1.10
CRP	78.2H		9.7H	7.0H	mg/L	<6.0
Cholesterol					mmol/L	<5.5
Trig					mmol/L	<1.8
HDL Chol					mmol/L	>1.0
Haemolysis Index						
Haemolysis	0.06	0.13	0.19	0.08		

Estimated GFR(CKD-EPI Formula)
eGFR is calculated using creatinine, sex and age of the patient ONLY.
It is less accurate in situations of rapidly changing kidney function, extremes of body size or age and severe malnutrition.

*GFR units are: mL/min/1.73m2

General Glucose Comment:
The above glucose reference range is valid for FASTING samples on males or non-pregnant females.
The reference range for RANDOM GLUCOSE is 3.5-7.7 mmol/L.
A RANDOM GLUCOSE >11.0 mmol/L is diagnostic of DM.

Please note: As of the 21/09/2018 some minor reference interval changes have been made to magnesium
RCPA Manual November 2014.

Age Related Reference Intervals
Where appropriate, the age-related Reference Interval is quoted for each analyte. These Reference Intervals are available from the laboratory. Status: F

Microbiology 28/09/2018 10:10 : Faeces MC&S
1.)Image : LAB.NUMBER: M148363
SPECIMEN: FAECES
MACROSCOPIC APPEARANCE: Unformed

MICROSCOPY:

Leucocytes:	Not Seen	
Erythrocytes:	Not Seen	
Cryptosporidium oocysts:	Not Detected	by Immunofluorescent stain
Giardia intestinalis:	Not Detected	by Immunofluorescent stain
Wet Preparation:	No other trophozoites, ova, cysts or parasites seen in concentrated preparation.	

CULTURE:

Campylobacter, Salmonella and Shigella NOT isolated.

CLOSTRIDIOIDES (CLOSTRIDIUM) DIFFICILE:
Clostridioides difficile enterotoxin (Toxin A and/or B): Not Detected

Clostridioides difficile was NOT detected in faeces using a rapid membrane enzyme immunoassay test.

In cases where clinical suspicion of Clostridioides difficile infection is high, please contact the clinical microbiologist or microbiology registrar on 62442514 to discuss additional testing options. Status: P

Microbiology 25/09/2018 17:10 : Urine MC&S
1.)Image : Lab. Number: M142735
SPECIMEN: URINE
DESCRIPTION: Midstream

MICROSCOPY:

Leucocytes	10-100 x 10^6/L	Normal value <10 X 10^6/L
Erythrocytes	< 10 x 10^6/L	Normal value <10 X 10^6/L
Squamous Epithelial Cells	< 10 x 10^6/L	Normal value <10 X 10^6/L

A squamous epithelial cell count of >10 x 10^6/L is suggestive of improper collection.

Please note: Revised microscopy result.
Previously reported as Leucocytes < 10 x 10^6/L

DIPSTICK CHEMISTRY:

pH	5	Normal value 4.5 - 8.0
Protein	Negative	Normal value < 0.3 g/L
Glucose	++ (4 - 15 mmol/L)	Normal value < 2 mmol/L
Nitrite	POSITIVE	Normal value is Negative

COLONY COUNT:
> 10^8/L

Normal MSU values for

Males	<10^6/L
Asymptomatic Females	<10^8/L
Symptomatic Females	<10^5/L

CULTURE:
1. Escherichia coli

SENSITIVITIES:	1
Amox/Clav Acid	S
Cephalexin	S
Gentamicin	S
Nitrofurantoin	S
Amp/Amoxicillin	R
Trimethoprim	R

Please note that due to poor levels achieved in tissue, norfloxacin and nitrofurantoin should be avoided when treating complicated

infections of the urinary tract. Status: F

Immunology 25/09/2018 14:30 : Haematinics
1.)Image : ---Cumulative
Report----------

Request No:	P104406	P410300	P058877	P334421	P339577		
Date:	24/04/12	10/12/15	11/02/16	23/09/17	25/09/18		
Time:	*UNK*	12:15	11:45	09:10	14:30	Units	Ref Range
HAEMATINIC TESTING							
Vitamin B12	296	972H	408	180	125L	pmol/L	138-652
Ser/Pl Folate	25.3	25.5	28.7	30.7	38.8	nmol/L	9.2-39.3
IRON STATUS							
Ferritin	82				60	ug/L	10-230
Transferrin	2.8				2.5	g/L	1.7-3.4
Iron	18				6L	umol/L	9-30
% Trf Satrtn	24				9L	%	18-46
Hb	146	134	136	121	126	g/L	115-160
MCV	93	94	94	98H	96	fL	80-96
RDW	13.6				16.6H	%	11.0-14.5

24/04/12 12:24
Comments: Normal study.

10/12/15 12:15
Comments: Vitamin B12 levels may be increased with replacement therapy, liver disease or myeloproliferative disorders.

25/09/18 14:30
Comments: Study is suggestive of inflammation, infection or other reactive process. However iron deficiency cannot be excluded. Follow up study when patient is clinically well is indicated. Mildly reduced vitamin B12 levels do not necessarily indicate functional vitamin B12 deficiency. Correlation with clinical features and corroborative laboratory assays (such as homocysteine, anti parietal cell antibodies) is suggested.

As of 30/08/2018, adult Ferritin modified reference interval based upon Aussie Normals-Pathology 2015; 47(2): 138-144; Status: F

Chemistry 25/09/2018 14:30 : Special Chemistry
1.)Image : Request No: P104406 P410300 P339577

Date:	24/04/12	10/12/15	25/09/18		
Time:	*UNK*	12:15	14:30	Units	Ref Range
GLYCAEMIC CONTROL MONITORING-(Venous Whole Blood)					
HbA1c (%)	6.8H	6.5H	6.1H	%	(See below)
HbA1c (IFCC)	51	47	43	mmol/mol	(See below)
Glucose	6.8	5.2	7.5	mmol/L	

The analytical method of HbA1c measurement remains unchanged. The two

units can be inter-converted according to the table below.

mmol/mol	%	mmol/mol	%	mmol/mol	%	mmol/mol	%
35	5.4	55	7.2	75	9.0	100	11.3
40	5.8	60	7.6	80	9.5	110	12.2
45	6.3	65	8.1	85	9.9	120	13.1
50	6.7	70	8.6	90	10.4	130	14.0

Clinical Significance:
HbA1c < 7.1% (< 54 mmol/mol) demonstrates satisfactory glycaemic control.
HbA1c targets should be individualised for particular patient groups to achieve the best outcome.
Reference: Diabetes Australia and the NHMRC, 2009

Glycated haemoglobin may be underestimated in cases of reduced red cell survival (eg Haemolysis), some haemoglobinopathies and thalassaemia. Status: F

Relevant Diagnostic Imaging
Brain- 63064 28/09/2018 15:31
1.)Brain- 63064 :
URN:
Reading Dr:

DATE OF EXAM: 28/09/2018

Examination: MR - Brain- 63064

Examination: Brain- 63064

Clinical history: 73F PRESENTS WITH ?L) MCA STROKE/COMPRESSION SECONDARY TO NPH/MALFUNCTIONING VP SHUNT.

Technique: Multiplanar multi sequence MRI of the brain.

Comparison: CT brain 25 September 2018.

FINDINGS:

The patient has a Certas Codman Plus programmable valve VP shunt in situ. Pre and post MRI VP shunt series radiographs were performed to review position post MRI study.

The V-P shunt terminates in the left lateral ventricle anterior horn.
There is significant associated artefact from the shunt.
There is persistent ventriculomegaly, appearing stable to the earlier CT brain study (5 September 2018):
- Biatrial diameter (47mm) and third ventricle transverse diameter (17mm).

There is gliosis and susceptible of the artefact (in keeping with micro haemorrhage) in the left frontal lobe which likely relates to the course of a previously sited intracranial drain.

There is a wedge-shaped region of abnormal restricted diffusion measuring 19 mm in diameter, within the left paramedian pons, in keeping with acute infarct.
A single hyperintense focus in the left cerebellar hemisphere (series 2 image 28) represent a further punctate focus of ischaemia. Another restricted diffusion focus noted in the top slices within the right

precentral cortex (series 2 image 45) .

Background changes of periventricular FLAIR hyperintense lesions, likely reflecting chronic ischaemic microangiopathy.

Intraorbital contents and paranasal sinuses appear normal.

The corpus callosum appears thinned secondary to the degree of ventriculomegaly.
The craniocervical junction appears unremarkable.

IMPRESSION:
1. Acute infarct in the left paramedian pons, with equivocal appearance for further punctate focus of ischaemia in the left cerebellar hemisphere (series 2 image 28).
Another restricted diffusion focus noted in the top slices within the right precentral cortex (series 2 image 45) .

2. Stable appearances of V-P shunt with persistent ventriculomegaly as described above.

Pre and post V-P shunt radiographs were performed, and the images were discussed with the on-call neurosurgical registrar who confirmed satisfactory appearances post MRI.

Status: Final
Preliminary Reading Doctor: Authorising Doctor:

Brain- No Contrast 25/09/2018 13:25
1.)Brain- No Contrast :
URN:
Reading Dr

DATE OF EXAM: 25/09/2018

Examination: CT - Brain- No Contrast

Examination: Brain- No Contrast

Clinical history: FALL 4 DAYS AGO. NOW CONFUSED AND HAS STOPPED SPEAKING ENGLISH.

Technique: Non-contrast CT brain.

FINDINGS:

Comparison is made with previous brain CT performed 16/3/2018.

Redemonstration of the extraventricular drain terminating in the anterior horn of left lateral ventricle which is unchanged in positioning
There has been an interval increase in size of the lateral ventricles now measuring 77 mm (previously measuring 72 mm) at the posterior aspect of the lateral ventricles. The third ventricle is also more prominent measuring 16 mm in lateral diameter compared to 13mm previously. The fourth ventricle is of normal size and aqueduct is patent .No subfalcine, uncal or tonsillar herniation is seen.

There is no midline shift.

There has been interval resolution of the right subdural haemorrhage.
No new intra axial or extra-axial haemorrhage is identified.

No acute fracture is identified.
No other acute calvarial abnormality is demonstrated.

Orbits and their contents are unremarkable.
Mastoid air cells and paranasal sinuses aerate normally.

IMPRESSION:
Interval increase in size of the lateral and third ventricles .
Correlation with ventricular shunt is recommended
No acute intra-axial or extra-axial haemorrhage or fracture is identified.

Status: Final
Preliminary Reading Doctor: Authorising Doctor:

Doppler- Carotids 27/09/2018 15:24
1.)Doppler- Carotids :
URI
Reading Dr

DATE OF EXAM: 27/09/2018

Examination: US - Doppler- Carotids

Examination: Doppler- Carotids

Clinical history: 73F PRESENTS WITH R) HEMIPARESIS + MIXED APHASIA ON BG OF VP SHUNT INSERTION IN MARCH FOR NPH. ?CAROTID OCCLUSION

FINDINGS:
RIGHT CAROTID SYSTEM:
The carotid bifurcation is observed at a normal level.
No significant calcified or soft plaque is evident.
No haemodynamically significant stenosis is demonstrated.
The mid CCA PSV measures 66 cm/s. Within the proximal, mid and distal ICA the PSV measures 44, 56 and 50 cm/s respectively.
The ICA/CCA PSV ratio is 0.67.
Anterograde flow is observed within the right vertebral artery.

LEFT CAROTID SYSTEM:
The carotid bifurcation is observed at a normal level.
The thickness of the intima measures 1.3 mm at the mid CCA and there is a small amount of calcified plaque within the mid CCA and carotid bulb.
No haemodynamically significant stenosis is demonstrated.
The mid CCA PSV measures 75 cm/s. Within the proximal, mid and distal ICA the PSV measures 53, 63 and 70 cm/s respectively.
The ICA/CCA PSV ratio is 0.71.
Anterograde flow is observed within the left vertebral artery.

IMPRESSION:
There is minimal calcification in the left CCA and carotid bulb with no haemodynamically significant carotid artery stenosis.

Status: Final
Preliminary Reading Doctor: ; Authorising Doctor:

VP Shunt Series 26/09/2018 14:59
1.)VP Shunt Series :
URN
Reading Dr:

DATE OF EXAM: 26/09/2018

Examination: XR - VP Shunt Series

CLINICAL HISTORY AND FINDINGS:
XRAY CHEST AND LATERAL BRAIN (SHUNT SERIES).

Clinical history:

Right paresis and aphasia on background of NPH with shunt placed 1/18 and SDH secondary to fall. Check position of shunt.

FINDINGS:

Comparison is made with the radiograph from chest radiograph and 25/9/2018.

Shunt tubing again noted. There is no discontinuity, fracture or kink of the visualised shunt tubing. Linear lucency in the tubing at the level of C3 is favoured to be a composite shadow.

The lungs and pleural spaces are clear.

No other interval change identified.

Electronically signed by

Dr

BMedSc (Hons) MBBS FRANZCR

IMPRESSION:
As Above.

Status: Final
Preliminary Reading Doctor: Authorising Doctor

Amendment Reason
Amended at ***03/10/2018 17:12*** *by*
holter monitor not required before discharge

Amended at ***03/10/2018 15:32*** *by*
change of medication to ranitidine given interaction between pantoprazole and methotrexate

Clinician:
For Consultant:

Signature:
Date: 03/10/2018 17:12