

Case discussion

- 14 year old boy- master G
- Admitted to the ward around 10.00 am

History and Examination

- Fever 4 days
- Diarrhoea and vomiting
- Myalgia
- Gum bleeding
- Dizziness
- BP 100/70
- Pulse 80bpm, good volume
- Febrile
- weight - 35 kg

Admitted with FBC-
(done 14 hours
before) WBC 4.5
Platelets 138,000
PCV – 44
Diagnosis of Dengue

management in the ward

- after assessment - Full blood count sent
- started on IV fluids - 0.9% NaCl
 - 150ml/ hr 1st hr
 - 250ml/ hr for next 4 hrs
 - 500 ml/hr for 1 hr
 - 250 ml/hr for next 4 hrs (
total of 2650ml/ 10hrs from
10 am - 8pm)

At 9pm.....

Ultra sound scan

- Evidence of leak

WBC 3,300

Platelets 70,000

PCV 44 (on
admission at 10 am)

- Timing of critical phase?
- Fluid quota for the critical phase?

conti....

- reason for giving this amount of fluid (IV) - had some vomiting /diarrhoea /mild abdominal pain.
- **What are the problems with this patient's management?**

- critical phase from ? **10.00am**
(from the time of admission)
- Fluid quota for 35 kg = 1800 + 1750 = 3550ml
(maintenance
 - $10 * 100 = 1000$
 - $10 * 50 = 500$
 - $15 * 20 = 300$
 - 5 % deficit $35 * 50 = 1750$)
- Expected UOP = **20-35 ml / hr**

cont.....

- Platelet below 100,000 , thought about leaking DHF –USS
- Isotonic solution given
- calculation of fluid quota and timing
- More intra venous fluid during leaking phase given without monitoring
- 2650ml out of 3550 given during 1st 12 hours of CP

**Monitoring Chart II for Management of DHF in Paediatric and Adolescent Patients during
Critical Phase Patient to be monitored hourly**

Name of the Patient Master - G1 BHT..... Date and time of admission 10 AM / 25.03. Ward - 14 years

Weight - <u>35</u>	Height - <u>1</u>	Ideal body weight - <u>40 kg</u>	M - <u>1800</u>	M + 5% = <u>3550</u> <u>1800 + 1750 =</u> ml
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Critical Phase Commencing date and time 10 AM - 25/3 End date and time 10 AM - 27/3

Fluid ml/Kg/hr	10am	11	12	1pm	2p	3p	4p	5p	6p	7p	8p	9p	10p	11	12	1A	2A	3A	4A	5A	6A	7A	8A	9AM
10																								
9																								
8																								
7																								
6																								
5																								
4																								
3																								
2																								
1.5																								
1																								
Used Remaining fluid quota	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
HCT	44	44																						
HR																								
BP																								
Pulse Pressure																								
RR																								
CRFT																								
Extremities warm/cold																								
UOP void/ catheter																								
UOP ml/Kg/hr																								
Platelet count	140	70																						

- Comment on the fluid management
- How do you manage him now?

pitfalls

- GP - ??Diagnosis of Dengue even though confirmatory test not done
- Assessment of dehydration?
- What phase of dengue?
- What about febrile phase monitoring? vitals/output
- Inward PCV & monitoring before giving boluses
- Amount of bolus for a 35 kg patient?

- 75% of the fluid quota /10 hours
- risk of overload/ ??early colloid

Monitoring Chart II for Management of DHF in Paediatric and Adolescent Patients during Critical Phase Patient to be monitored hourly

Name of the Patient Master - G1 BHT Date and time of admission 10 AM / 25.03 Ward 14 years

Weight - <u>35</u>	Height - <u>1</u>	Ideal body weight - <u>40 kg</u>	M - <u>1800</u>	M + 5% = <u>3550</u> <u>1800 + 1750 =</u> ml
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 Saline
 Oral

Critical Phase Commencing date and time 12 10 AM - 25 / 3 End date and time 10 AM - 27 / 3

Fluid ml/Kg/hr	10am	11	12	1pm	2p	3p	4p	5p	6p	7p	8p	9p	10p	11	12	1A	2A	3A	4A	5A	6A	7A	8A	9AM
10																								
9																								
8																								
7																								
6																								
5																								
4																								
3																								
2																								
1																								
210																								
175																								
140																								
105																								
70																								
50																								
35																								
ward.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Remaining fluid quota										2650ml						3140				3350			4060	
										75%										95%			115%	
HCT	44	44								42							46					49	51	
HR										82		82			84		86			82		82	86	88
BP										100/70	100/70	100/68			100/70		100/70	100/70	100/70	100/70	100/70	90/60	110/70	110/80
Pulse Pressure										30		30			32		28	30	30	30	30	30	40	30
RR										22		22			22		24		22		24	24	26	28
CRFT										<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Extremities warm/cold										w														
UOP void/ catheter										30	20	25	35	25	20	20	24	25	20	30	25	70	45	
UOP ml/Kg/hr											0.57	0.7	1	0.7		0.57	0.7		0.5	0.9	0.7	2.0	1.2ml	
Platelet count	140	70								45														

Temp 100.8 F

DHF / catheterized
Leaking NO fever
NO vomiting

Monitoring Chart II for Management of DHF in Paediatric and Adolescent Patients during Critical Phase

25th hr

Fluid ml/Kg/hr	10 am	12 N	2 pm	4 pm	6 pm	8 pm	10 pm																	
10 (350)																								
9																								
8																								
7																								
6																								
5																								
4 105																								
3 70																								
2 50																								
1.5 35																								
1																								
	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
Remaining fluid quota	4410		4510																					
			127%																					
HCT 51		48																						
HR	98	90	110	126																				
BP	110/60	120/70	120/70	110/70																				
Pulse Pressure	50	50	50	40																				
RR	30	34	38	46																				
CRFT	<2	<2	<2	<2																				
Extremities warm/cold	W	W	W	W																				
UOP void/ catheter	45	60ml	60	60ml																				
UOP ml/Kg/hr	1.2	1.8	1.8	1.8																				
Platelet count																								

**Unstable
Dyspnea+**

Features of overload while leaking during critical period - on admission to ICU

- Febrile 100 F
- Periorbital oedema+
- Facial puffiness+
- Tachypnoeic
- Pulse 126/min, good volume
- BP 110/70
- RR 46 (SpO₂ -95% on oxygen via face mask)
- PCV 44
- Total amount of fluid given for 28 hours = 4510 (127%)

Problems

- Fluid overload around 28-30hrs of the critical phase
- Total fluid quota for the critical phase – 3550ml
- Amount of fluid given for 28 hours – 4600ml
- How was this child managed at the ICU?

Patient went home

ICU management

Health Form : H-1243A

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Monitoring Chart II for Management of DHF in Paediatric and Adolescent Patients during Critical Phase

25th hr

Fluid ml/Kg/hr	10 Am	12N	2pm	4pm	6pm	8pm	10pm	12	2am	4am	6am													
10 (350)	X					X																		
9	X					X																		
8	X					X																		
7	X					X																		
6	X					X																		
5	X					X																		
4 105	X					X																		
3 70	X					X																		
2 50	X					X																		
1.5 35	X					X																		
1	X					X																		
	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
Remaining fluid quota	4410		4510																					
			127%																					
HCT 51		48				43				49	44				48				46	46	44			
HR	98	90	110	126		100	110			110	90	92		90	88		90		110	96				
BP	110/60	120/70	120/70	110/70		110/80	100/70			110/70	100/70				100/60				100/60	96/60				
Pulse Pressure	50	50	50	40		30	30			40	30				40				40	34				
RR	30	34	38	46		42	40			42	36			36		32			34	28		28		
CRFT	<2	<2	<2	<2		<2	<2			<2	<2			<2		<2				<2	<2			
Extremities warm/cold	W	W	W	W		W	W			W	W			W		W				W				
UOP void/ catheter	45	60ml	60	60ml/10 ⁰	12 ⁵	30 ⁰	10 ⁵	60	50	90	400	175	80	70		40	40	50	200	180	100			
UOP ml/Kg/hr	1.2	1.8	1.8	1.8	(Urine output more than 1-2cc/hr)							15												
Platelet count				15,000										20,000										

Management.....

- Oxygen
- IV frusemide
- ¼ hourly monitoring
- Paracetamol sos
- Calcium gluconate
- minimum fluid (when necessary colloid)
- Ranitidine IV
- IV cefuroxime

Patient discharged

management

- ABCS checked - no issues
- organ function - not altered significantly
- Responded to Frusemide repeated doses IV
- minimum fluid / regular PCV/ monitoring

Investigations.....

	20/07	21/07	22/07	23/07
Platelets	70,000	26,000	15,000	63,000
WBC		3800	6700	7100
PCV	44	46	47	44
AST		131	154	216
ALT		130	100	64
INR		1.2	1	

Take home messages

- importance of monitoring and fluid management when platelet is around 100,000
- Try to avoid (shock) overload
- anticipate fluid overload - if more fluid given, early symptoms and signs of fluid overload
- management of fluid overload - status of the patient , CP (which part) or re absorptive phase
- look for complications ABCS? organ failure