Large paracetamol overdose at term gestation with delayed treatment using N-acetylcysteine: A Case Report

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Citation

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Abstract

Paracetamol is one of the commonest drugs available in open market, liable for misuse in pregnancy. Overdose of Paracetamol results in fatal hepato-renal failure and death. Early administration of N-acetylcysteine within 10hrs has been found to reverse the hepatic damage from 89% to 3%1.We present the first case in English literature, where a massive overdose of 64g of Paracetamol has been taken in third trimester of pregnancy and delayed treatment with N-acetyl cysteine after 48hrs, having saved the lives of both the mother and the baby.

CASE REPORT

A 39-year-old lady was admitted at 39weeks of gestation following 64g of Paracetamol ingestion, after 48hours. On admission, her GCS was 14, vital signs were stable and cardiotocogram was reassuring. The initial blood results showed deranged liver function tests, prolonged coagulation profile and elevated salicylate and paracetamol levels. (Table1)

Labour was induced and treatment with N-Acetylcysteine was commenced immediately. Patient delivered normally in 8 hours, but sustained atonic post partum haemorrhage, controlled with oxytocics. Clotting profile normalised in 2 days and liver function tests in 7 days.

Baby had Apgars of 3 at 1 min and 8 at 5 mins. Blood results showed elevated paracetamol and salicylate levels, raised liver function tests, which required treatment with N-acetylcysteine. Baby clinically improved in 4 days. Mother and baby were discharged on day 7 and follow up at 11weeks, showed no residual liver damage.

Figure 1

Table 1: Blood profile of mother and baby from admission to discharge

Investigations	Admission 22.15 06/12	4hrs 07/12	Day0 (17h) 07/12	Day1 08/12	Day2 09/12	Day3 10/12	Day4 11/12	Day5 12/12	Day6 13/12	Day7 14/12	Baby's bloods at birth
Total Bilirubin 2-20µmol/L	39	42	45	35	37	19	18	13		10	45
ALT 0-50IU/L	3273	5279	8277	7862	4369	2787	1945	1180		634	122
AST 0-45IU/L		3870	5391	2886	1258	372	205			43	
LDH 100-350IU/L		2938	3817	595	344	475	513			438	
GGT 0-40IU/L	9	10	13	20	24	37	38	31		28	165
PT 12-14sec	17	21.1	20.1	18.6	13.9	13.5	10.7	10.5			14.4
APTT 22-30sec				35.1	28.9	27	25.5	25.9			
INR ≤1	1.7	1.8	1.8	2.0	1.2	1.3	1.0	0.9			1.3
Urea 2.5-7mmol/l	5.8	6.1	6.0	4.8	4.2	4.1	5.0	4.0		4.0	
Creatinine 60-120µmol/l	75	74	68	58	53	48	59	58		57	
Na 133-145mmol/l	120	113	112	120	141	138	139	140		140	113
K 3.5-5.3mmol/l	3.5	4.2	5.1	4.4	4.3	3.9	4.0	4.0		4.2	
Paracetamol 6mg/l at 24h	25	18	<15								18
Salicylate <2.2 mmol/l	<0.3	<0.3	<0.3								0.3
Hb 11.5-16.5g/dl	116	114	118	98	90	92	100	91		89	
WCC 3.5-11X10⁹/l	10.3	15.3	19.7	16.4	16.6	15.1	16.8	15.0		12.3	
Platelet Count 130-450X10⁹/l	169	138	149	200	265	390	444	437		394	
BM <11 mmol/l	5.2	3.3	4.6	5.9	4.3						4.4

DISCUSSION

Paracetamol, one of the commonest antipyretics, causes fatal hepatorenal damage when ingested in amounts of 12g.[1] It is detoxified in liver by glutathione conjugation and overdose causes binding of unconjugated toxic metabolites raising SGPT/AST levels > 1,000IU/L[2] when severe.

Treatment is to give glutathione precursors like N-

acetylcysteine [2] and the best predictor of hepatotoxicity was the time interval required for treatment ($P<0.01$)[3].

Unless severe maternal toxicity develops, overdose does not increase adverse pregnancy outcome. However; treatment delays increases miscarriage and fetal death [4, 5]. Fetal liver is at lower risk, as minimally metabolised by liver[2] but N-acetylcysteine is transplacentally transferred in significant amounts without adverse events[6].

Ludmir[2], reported an overdose of 64g at 15 weeks of pregnancy, N-acetylcysteine treatment in 24 hours saving lives of both mother and baby. Our case shows that similar dose and delayed treatment after 48hrs; could have similar benefits.

CONCLUSION

Paracetamol overdose is not uncommon and N-acetylcysteine is an effective antidote, which should always be considered, at all stages of detection.

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