in acute distress, using accessory muscles, somnolent but arousable, 
saturation of 75% on room air, BP 153/122, HR 149, RR 31, afebrile. She was  
reported that one day before admission she had ingested MDMA,  
brought to the ED by her roommate due to altered mental status 
with MDMA use.  

A case of severe hyponatremia with cerebral edema, hypoxemic  
potentially major end-organ damage and multi-organ failure. We pres  

ARDS AND SEVERE SYMPTOMATIC HYPONATREMIA ASSOCIATED WITH MDMA  
USE. A CASE REPORT  

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MDMA (3,4-methylenedioxy-methamphetamine) is an amphetamine  
derivative that has gained significant popularity in recent years,  
becoming the drug of choice for many young adults. MDMA has psy-  
choactive properties and unpredictable toxicity, leading to an increase  
in emergency department (ED) visits worldwide. MDMA toxicity can  
manifest as hyperthermia, severe hyponatremia, rhabdomyolysis and  
potentially major end-organ damage and multi-organ failure. We pres-  
ent a case of severe hyponatremia with cerebral edema, hypoxic  
respiratory failure with ARDS and left ventricular failure associated  
with MDMA use.  

A 19-year-old female chemistry student with no significant PMH was  
brught to the ED by her roommate due to altered mental status  
(AMS), nausea, vomiting and respiratory distress. Her roommate  
reported that one day before admission she had ingested MDMA,  
experiencing severe nausea and vomiting after intake and tried to  
rehydrate with oral intake of fluids. She was left unattended for around  
eight hours and then found confused, diaphoretic and complaining of  
shortness of breath. Vitals on admission included an oxygen satu-  ation of 75% on room air, BP 153/122, HR 149, RR 31, afebrile. She was  
in acute distress, using accessory muscles, somnolent but arousable,  
pupils PERRLA. Auscultation revealed diffuse crackles, no wheezes, no  
nuchal rigidity. The rest of her exam was unremarkable. She was in-  
tubated for impending respiratory failure and airway protection. Labs  
revealed VBG 7.19/41/19/15, lactate 7.7. After intubation the PaO2/FiO2  
ratio was 100. WBC 16.9 with left deviation, Hb 17.2, platelets 160, Na  
118, K 3.7, Cr 1.0, CK 1962, serum osmolality 259, urine osmolality 570,  
urinary Na 21, troponin 2.65, BNP 3317. UTox was positive for amphet-  
amines. CXR showed diffuse bilateral air-space opacities. Head CT re-  
valed severe diffuse cerebral edema with effacement of the convexity  
sulci and partial effacement of the lateral ventricles. Bedside echocar-  
diogram revealed a severely decreased LV systolic function, EF < 20%  
with diffuse wall motion abnormalities. NS was given as boluses with  
rapid improvement in serum Na. No hypertonic saline was used.  
Lung protective ventilation was used for treatment of suspected ARDS.  
Repeated Echo 24 hours after supportive treatment showed significant  
improvement (EF estimated at 35%). No diuretics were needed. The  
patient improved rapidly, was extubated at 48 hours and eventually  
discharged home with instructions for outpatient follow-up.  

MDMA is an amphetamine derivative with a range of psychotropic  
actions commonly abused by young people in recreation. MDMA can  
be associated with severe symptomatic hyponatremia and cerebral  
edema secondary to thirst stimulation. ARDS and multi-organ failure is  
unusual, related to the oxidative stress triggered by MDMA metabo-  
lities. In summary, MDMA use can be associated with significant  
metabolic disturbances and multi-organ failure with ARDS. Treatment  
is mainly supportive.