Cases report

ECLAMPSIA IN ADOLESCENT PREGNANCY: REPORT OF TWO CASES

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Abstract The author reports two cases of adolescent pregnancy, primigravida, with excessive weight gain during antenatal care (ANC). Without health education in self care, these cases developed eclamptic convulsions. The treatment of the convulsions by administering diazepam to the mothers intravenously, and the low birth weight of the newborn, caused the babies to have low Apgar scores. Two of the 3 babies needed to be intubated and all three were admitted to the nursery intensive care unit. The first case was a 15-year-old female, with full term pregnancy. She developed ten convulsions before reaching the hospital. The newborn was delivered by emergency cesarean section, due to fetal distress. The infant was intubated because of poor respiratory effort and discharged after a prolonged hospital stay of 10 days. The second case was a 17-year-old female, with 33+ weeks gestation. She developed two convulsions and was then diagnosed as twin pregnancy with eclampsia. Both infants were delivered vaginally by vacuum extraction. The second twin was intubated and both were discharged after hospital stays of 15 days for one child and 19 days for the other.

Conclusion Increased awareness of the development of eclampsia in adolescent pregnancy by improving the service quality of ANC might lead to an earlier diagnosis and better prognosis.

Keywords: adolescent pregnancy, eclampsia, excessive weight gain, diazepam, low Apgar scores, twin pregnancy

Eclampsia refers to the occurrence of one or more generalized convulsions and/or coma in the absence of other neurological conditions. It is estimated that eclampsia accounts for 50,000 maternal deaths per year worldwide. The incidence of eclampsia varies from 6-100 per 10,000 livebirths. It remains a significant cause of maternal and perinatal death and complications. The maternal mortality rate from eclampsia has been reduced with early diagnosis and proper management and is currently 0-13.9%. The fetal mortality rate from eclampsia...
Eclampsia is one of the major health problems in Thailand. Adolescent and twin pregnancies are more frequently associated with eclampsia. Recommendations to reduce the burden of eclampsia are to promote and improve quality of antenatal care (ANC) and health education, especially in the third trimester, increase access to high quality essential obstetric care, and improve the service delivery in rural areas. Magnesium sulfate appears to be substantially more effective than diazepam for the treatment of eclampsia. The acute use of diazepam, especially intramuscularly or intravenously, may be enough to produce fetal hypothermia, lethargy, respiratory problems and feeding difficulties. The aim of this report was to show that the inadequacies and low quality ANC in detecting excessive weight gain in adolescent pregnancy, together with the lack of self care, lead to eclamptic seizures. Also, a low child birth weight and the treatment of eclampsia by administering diazepam to the mother result in infants with low Apgar scores, and the need for intubating and a prolonged hospital stay for the baby in the nursery intensive care unit.

Case Report

Case 1

A 15-year-old primigravida, presented with a history from the antenatal records of a local health service, as follows:-

First visit: her gestational age was 12 weeks, body weight 49 kg and BP 100/70 mmHg.

Second visit: her gestational age was 21 weeks, body weight 48 kg and BP 110/70 mmHg. The fundal height was at the umbilical level.

Third visit: her gestational age was 37 weeks, body weight 52 kg and BP 100/70 mmHg. The fundal height was 32 cm above the symphysis pubis.

Fourth visit: her gestational age was 37+5 weeks, body weight 58 kg (6 kg gained in 5 days) and BP 110/70 mmHg. The fundal height was 32 cm above the symphysis pubis. She did not return for ANC on the appointment dates in the last three visits.

At 39+2 weeks-gestation, 11 days after her last visit, she developed 5 convulsions at home, each lasting 1 min. She was sent to a local hospital but developed another 5 convulsions before reaching it. Physical examination revealed BP 140/90 mmHg, pulse rate 120/min, temperature 38.5 °C, and fetal heart rate 140 bpm. Vaginal examination revealed a 3 cm dilated cervix and vertex presentation. Management included three 10 mg doses of diazepam intravenously, nasogastric intubation and magnesium sulfate at 4 gm intravenously with 1 gm per hour infusion, retained foley catheter and referral to Maharaj Nakorn Chiang Mai Hospital.

On admission, she was unconsciousness with vital signs revealing BP 180/120 mmHg, pulse rate 100/min, temperature 37.2 °C, respiratory rate 50/min, and the fundal height was 33 cm above the symphysis pubis. Vaginal examination revealed a 1 cm dilated cervix, 90% effacement, intact amniotic membranes, and a Bishop score of 2.

Management of the patient in the labor room included continuation of magnesium sulfate infusion, and monitored fetal heart rate electronically, which revealed fetal tachycardia, at 180 bpm together with persistent late deceleration. Emergency cesarean section was performed. The infant was male and born 1 hr and 23 min after admission, which was about
3 hr after diazepam infusion to the mother. The birth weight was 2,350 gm. The Apgar scores were 1 at one minute and 5 at five minutes. The amniotic fluid was clear. The placenta was normal, weighed 700 gm and located at the fundus with no retroplacental blood clot. The mother developed postpartum agitation and a CT scan of her brain revealed normal findings. She then developed rhonchi on both lungs. A chest x-ray revealed infiltration of both lungs. She was treated with antibiotics and discharged on the tenth day after admission.

The infant was intubated, due to poor respiratory effort, and managed in the nursery intensive care unit. Seizures developed, but were well controlled by phenobarbital. The infant could maintain spontaneous respiration and the tube was safely removed after 3 days. The infant was discharged after 10 days of hospital stay.

**Case 2**
A 17-year-old primigravida, presented with a history from the antenatal records of a local health service as follows:-

First visit: her gestational age was 20\textsuperscript{+1} weeks, which was late for initial ANC and the fundal height was at the umbilical level.

Second visit: her gestational age was 31\textsuperscript{+2} weeks and fundal height was 36 cm above the symphysis pubis.

Third visit: her gestational age was 33\textsuperscript{+2} weeks, BP 140/80 mmHg, and a 20.8 kg, increase in body weight compared to non pregnant weight. Like the first case, she did not attend ANC as appointed.

At 33\textsuperscript{+4} weeks-gestation, 3 days after her last visit, she developed one convulsion at home and was sent to a local hospital, but developed another convulsion before reaching it. Physical examination revealed BP 150/100 mmHg, pulse rate 100/min, and respiratory rate 22/min. Management included 4 gm of magnesium sulfate intravenously with 1 gm per hour infusion, and diazepam at 10 mg was also given intravenously. She was referred to a provincial hospital where an ultrasound scan was carried out. Twin pregnancy was diagnosed with Twin A in a vertex position and Twin B in a transverse lie. Both fetal ages were 34 weeks by ultrasound parameters. She was then referred to Maharaj Nakorn Chiang Mai Hospital.

On admission, she had good consciousness with vital signs revealing BP 170/120 mmHg, pulse rate 88/min, temperature 36.5 °C, respiratory rate 22/min, fundal height 37 cm above the symphysis pubis, and twin pregnancy with fetal heart rates of 130 and 138 bpm. Uterine contractions were 50 seconds every 2 and a half minutes, and pitting edema was 1+. Vaginal examination revealed a 3 cm dilated cervix, 80% effacement, bulging amniotic membranes, and the fetal head engaged.

Management of the patient in the labor room included continuation of magnesium sulfate infusion, monitored fetal heart rate electronically, which revealed normal findings, and administered antihypertensive and analgesic drugs. Vaginal delivery for the first twin was accomplished by vacuum extraction after 5 hours of labor (about 11 hr after diazepam infusion to the mother). The infant was female, and weighed 1,600 gm Apgar scores were 8 at one minute and 10 at five minutes. Bedside ultrasound scanning was performed and revealed that the presentation of the fetus was vertex. Monitoring of fetal heart rates showed 4 minutes of bradycardia at 90-95 bpm returning to normal 10 minutes before birth. The second twin was also delivered by vacuum extraction, 35 min after the birth of the first
twin. The infant was female, and weighed 1,550 gm with Apgar scores of 3 at one minute and 6 at five minutes. The patient recovered after delivery with BP 120-130/70-90 mmHg and was discharged on the sixth day after admission.

The first twin was admitted into the high risk nursery unit, due to low birth weight, and discharged after 15 days of hospital stay. The second twin was intubated and managed in the nursery intensive care unit, due to low birth weight and poor fetal condition, and discharged after 19 days of hospital stay.

**Discussion**

In this report, both cases were adolescent primigravida, with a sudden increase in weight in the first patient of 6 kg during 5 days of antenatal visits. The second patient had a total weight gain of 20.8 kg after only 33 weeks-gestation. The diagnosis of impending pre eclampsia should be considered by the health care provider.(10) Health education about self care can help pregnant women get to the hospital on time before developing eclamptic convulsion. In general, the average weight gain is 0.45 kg per week during the third trimester of pregnancy, with an average total weight gain in pregnancy of 12.5 kg.(10) The factors found to be at least partially responsible for failure to prevent eclampsia were physician error (36%) and lack of prenatal care (19%).(11) Since both cases in this report had already attended ANC, reorganization of the maternity service could prevent antenatal eclampsia. This includes primary ANC, which should have clear instructions for referring patients to high risk ANC or a hospital. Also, women need to be able to recognize and act upon signs of impending eclampsia. Reorganization of maternal care can have major public health benefits and cost savings.(12) The risk of hemorrhagic stroke correlates directly with the degree of systolic blood pressure,(13)and it is of benefit for adolescent pregnancy to start treatment of hypertension at a lower level of blood pressure to prevent cerebrovascular accident, which accounts for 15-20% of deaths from eclampsia.(14)

It is also interesting to note that diazepam therapy, which remains unproven for eclampsia, was still used in both presented cases.(10) There is now strong evidence from systematic reviews of randomized trials to support the use of magnesium sulfate for the prevention and treatment of eclampsia. Magnesium sulfate was more associated with the reduction in maternal death when compared to diazepam. There was also a substantial reduction in the risk of further seizures, fewer Apgar scores of less than 7 at five minutes, and fewer babies with length of stay in a special care baby unit for more than seven days.(10,15,16) Diazepam is a long acting benzodiazepine compound. After either intramuscular or intravenous injection, diazepam was found to cross the placenta rapidly and reach a considerably higher concentration in cord plasma than in maternal plasma. The mean half-life in the neonate is about 31 hours. The use of polypharmacy by administering diazepam in both presented cases not only shows no evidence of added benefit, but also potential increased risk of complications. The wide variation in prescribing anticonvulsants among doctors remains a serious problem in managing eclampsia.

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References
อาการชักจากภาวะความดันโลหิตสูงในสตรีวัยรุ่นตั้งครรภ์: รายงานผู้ป่วย 2 ราย

ชัยรัตน์ คุณาวิกติกุล, พ.บ.
ภาควิชาสูติศาสตร์และนรีเวชวิทยา คณะแพทยศาสตร์ มหาวิทยาลัยเชียงใหม่

บทคัดย่อ รายงานผู้ป่วย 2 รายเป็นสตรีวัยรุ่นที่ตั้งครรภ์แรก มีอาการน้ำหนักตัวเพิ่มขึ้นมากจากภาวะความดันโลหิตสูงในระหว่างการตั้งครรภ์ เนื่องจากการขาดการควบคุมน้ำหนักตัวในระหว่างการตั้งครรภ์ ทำให้เกิดภาวะอุณหภูมิสูงและภาวะชักจากภาวะความดันโลหิตสูง ทำให้เกิดภาวะแทรกซ้อนต่างๆ ทำให้ผู้ป่วยต้องรักษาตัวในห้องผู้ป่วยเกณฑ์ 15 ปี

รายที่ 1 เป็นสตรีวัยรุ่นอายุ 15 ปี ตั้งครรภ์ครบกำหนด แต่เกิดอาการชัก 10 ครั้งในระหว่างการตั้งครรภ์ ทำให้ตั้งครรภ์น้ำหนักตัวสูงเกินกว่าปกติ มีการชัก 10 ครั้ง ทำให้ต้องทำการผ่าตัดเพื่อให้การคลอดแบบฉุกเฉิน ทำให้เกิดภาวะทารกแรกคลอดอ่อนแอ มี Apgar scores ต่ำ ต้องมีการใส่ท่อช่วยหายใจ และต้องรักษาในห้องผู้ป่วยเกณฑ์ 15 ปี

รายที่ 2 เป็นสตรีวัยรุ่นอายุ 17 ปี ตั้งครรภ์ครบกำหนด แต่เกิดอาการชัก 2 ครั้ง ทำให้ต้องทำการผ่าตัดเพื่อให้การคลอดแบบฉุกเฉิน ทำให้เกิดภาวะทารกแรกคลอดอ่อนแอ มี Apgar scores ต่ำ ต้องมีการใส่ท่อช่วยหายใจ และต้องรักษาในห้องผู้ป่วยเกณฑ์ 19 วัน

สรุป การเพิ่มความระมัดระวังต่อการควบคุมน้ำหนักตัวในระหว่างการตั้งครรภ์ ทำให้ผู้ป่วยมีการชักจากภาวะความดันโลหิตสูง ลดอันตรายต่อบุตร และทำให้สอบถามผู้ป่วยโดยละเอียด เพิ่มโอกาสในการตรวจพบและรักษาในระยะตั้งครรภ์ที่ยุติได้ เชิงเสี่ยงมารดา 2549; 45(3): 127-132.

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Apgar scores ต่ำ ต้องมีการใส่ท่อช่วยหายใจ และต้องรักษาในห้องผู้ป่วยเกณฑ์ 15 ปี