



## **Management of Hypertension in Elderly Pregnant Women with IVF Conception: A Case Report**

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### **Authors' contributions**

*This work was carried out in collaboration between both authors. All authors read and approved the final manuscript.*

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**Case Report**

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### **ABSTRACT**

**Introduction:** Hypertensive complications associated with pregnancy are the primary cause of maternal and fetal morbidity. Early development of cardiovascular disease is also anticipated relatively early after pregnancy is terminated. Over the past 20 years, infertility treatments have steadily increased and proven effective in achieving significant successful conception rates and live birth rates, even among women younger than 35 years of age.

**Symptoms and important clinical findings:** A 45 year old female was admitted in AVBRH on date 22/01/2021 with chief complaint of breathing difficulty (elderly G<sub>5</sub>P<sub>1</sub>D<sub>1</sub>A<sub>3</sub> with 28 weeks of gestational age) having history of previous LSCS with IVF conception with gestational hypertension.

**Obstetric history:** Patient had bad obstetric history of three abortions and one still-birth. In 2017 she had got the menopause. After menopause she took the treatment in AVBRH Sawangi (M) Wardha and got the regular menses. After regular menses, she received IVF cycle and she was conceived in 2<sup>nd</sup> IVF cycle.

**The main diagnoses, therapeutic interventions, and outcomes:** After physical examination and investigations, this case was diagnosed having 28 weeks of gestation with hypertension. Patient had previous history of LSCS. Patient was treated with antihypertensive drugs to reduce the

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symptoms of eclampsia. Also she was provided calcium supplement and iron supplement. Present case was stable but ultrasonography revealed sign of stage I- intra uterine growth restriction.

**Nursing perspectives:** Fluid replacement i.e. DNS and RL, monitoring of fetal heart rate and vital signs per hourly.

**Conclusion:** Conception with in vitro fertilization have increased risk of gestational hypertension as well as fetal complications like intra uterine growth restriction. But timely treatment and management improves the outcome of pregnancy.

*Keywords: Elderly; Gestational age; Lower segmental caesarean section; In vitro fertilization; Gestational Hypertension.*

## 1. INTRODUCTION

Hypertensive complications associated with pregnancy are the primary cause of maternal and fetal morbidity [1]. Early development of cardiovascular disease is also anticipated relatively early after pregnancy is terminated [2]. Over the past 20 years, infertility treatments have steadily increased and proven effective in achieving significant successful conception rates and live birth rates, even among women younger than 35 years of age [3]. Assisted reproductive technology processes are used to induce assisted pregnancies, including the non-invasive ovulation stimulation system accomplished through specific pharmacological agents [4-10]. However, these therapies continue to raise criticism because they have been linked, at least in the early years of their widespread adoption, to adverse obstetric and perinatal outcomes, including pregnancy-related hypertensive complications (preeclampsia and gestational hypertension) [11]. Regarding the etiopathogenesis of preeclampsia, it was thought that only the maternal cardiovascular and endothelial systems which could not overcome normal pregnant physiology were responsible for the disease, as preeclampsia is the result of complex generalized endothelial dysfunction. Nevertheless, recent studies have pointed that not only maternal improper physiological response but also paternal effect had an important role in the pathogenesis [12]. In addition, a recent singleton-restricted meta-analysis of selective ART procedures (in vitro fertilization and intracytoplasmic sperm injection) found that ART was associated with a greater risk of hypertensive complications associated with pregnancy relative to spontaneous pregnancies [13].

## 2. PATIENT INFORMATION

**Patient specific information:** A 45 yrs. Old female was admitted in AVBRH on date

22/01/2021 with chief complaint of breathing difficulty since last night, and blood pressure was high i.e. 150/100 mm/hg. After physical examination and investigation, doctor diagnosed this case as elderly G<sub>5</sub>P<sub>1</sub>D<sub>1</sub>A<sub>3</sub> with 28 weeks of gestational age with previous lower segmental caesarean section and currently having in vitro fertilization conception with gestational hypertension for further management.

A 45 yrs. old female had bad obstetric history. In 2010 she was pregnant but got aborted in 1 month. In the same year, she had 1.5 months pregnancy with spontaneous abortion and had dilatation and curettage. In 2011 she was again pregnant and carried full term normal pregnancy and lower segmental caesarean section was done but baby succumbed to death due to aspiration on 3<sup>rd</sup> post-operative day. In 2012 again 1.5 months pregnancy was aborted spontaneously and she underwent dilatation and curettage. In 2017 she had got the menopause. After menopause she took the treatment and she got the regular menses. After getting regular menses, she received IVF cycle and in 2<sup>nd</sup> IVF cycle she was conceived. Now she is having pregnancy of 28 weeks gestational age with hypertension.

**Primary concerns and symptoms of the patient:** Present case visited AVBR hospital at OBGYOPD on date 22/01/2021 with chief complaint of breathing difficulty since last night. Her blood pressure was high i.e. 150/100 mm/Hg at the time of reporting.

**Medical, family, and psycho-social history:** Present case had no history of any medical problems. She belonged to nuclear family and her husband had medical history of Diabetes Mellitus. She was mentally stable, conscious and oriented to date, time and place. She had maintained good relationship with doctors and nurses as well as other patients also.

**Relevant past intervention with outcomes:** Present case had bad obstetric history abortions.

### 3. CLINICAL FINDINGS

The patient was conscious and well oriented to date, time and place. Her body built was moderate and she had maintained good personal hygiene. Her blood pressure was high i.e. 150/100 mm/hg, pulse rate was slightly increased. On breast examination, breast was enlarged, tender and bluish veins were visible. Nipple was large and erected. On abdomen inspection, stria gravidarum, linea nigra was present. Abdominal shape was cylindrical, abdominal girth was 94 cm and fundal height was 22 cm. In abdomen palpation, fundal grip showed that hard rounded structure was felt. In lateral grip, right anterior curve was felt i.e. spine and left lateral side, felt small globular mass i.e. extremities, lie was longitudinal. In Pawlick's grip- movable small smooth masses was felt. In pelvic grip small smooth masses was felt. Fetal heart sound was 160 beat/min. On vaginal examination, discharge was not seen, no any uterine prolapse was observed.

**Timeline:** Present case had bad obstetric history. In 2010 she was pregnant but within 1 month, induced abortion was done. Same year she had spontaneous abortion of 1.5 months pregnancy followed by dilatation and curettage. In 2011 she was again pregnant and carried full term normal pregnancy and lower segmental caesarean section was done. But the baby succumbed due to aspiration on post-operative 3<sup>rd</sup> day. In 2012 again, she had spontaneous abortion of 1.5 months pregnancy followed by dilatation and curettage. In 2017 she got the menopause. After menopause she took the treatment in A.V.B.R. Hospital and she got the regular menses. After regular menses she received IVF cycle in A.V.B.R. Hospital and she was conceived in 2<sup>nd</sup> IVF cycle. Now she is carrying 28 weeks pregnancy with gestational hypertension.

**Diagnostic assessment:** On the basis of patient history, physical examination, abdominal palpation and USG and other investigations the patient is having singleton pregnancy. USG- single intrauterine live fetus of average gestational age of 28 weeks and corresponding to weight 886 gm. but fetal condition shows 1<sup>st</sup> stage of intra uterine growth restriction. Fasting blood sugar was normal but post meal was slightly increased. Urea – serum was slightly

decreased, Haemoglobin was slightly decreased. Total WBC count was increased. No challenges experienced during diagnostic evaluation.

**Prognosis:** Blood investigations show that the present case is slightly anemic, WBC level is increased. In ultrasonography findings, the fetal condition was normal but sign of First -stage intra uterine growth restriction are evident.

**Therapeutic intervention:** Present case took the medical management with anti hypertensive drug Tab. Lobet 100 mg three time in a day for hypertension, Tab. Depin 10 mg twice a day, Tab. Estrabet 2 mg twice a day for estrogen hormone level, Tab. Sildenafil 25 mg P/V on bed time. She also received the corticosteroid hormones and Tab. Calcium once a day. No changes were made in therapeutic intervention over the course of treatment.

**Nursing perspectives:** IV fluid was provided to maintain the fluid and electrolyte. Fetal heart rate and vital signs were monitored per hourly.

### 4. DISCUSSION

Present case was admitted in hospital with chief complaints was breathing difficulty and blood pressure was high (150/100 mm/hg) for further management. After physical examination and investigation doctor diagnosed this case as ANC with 28 weeks of gestational age with previous LSCS with IVF conception with gestational hypertension. She took treatment of gestational hypertension, oestrogen hormone therapy and calcium supplementary drug. Patient condition was stable, blood pressure was controlled i.e. 130/80 mm/hg, but fetal complication occurred, according to ultrasonography report which revealed stage I- intra uterine growth restriction.

A review study by Pande et. al. Singleton IVF/ICSI pregnancies were associated with a higher risk (95% confidence interval) of pre-partum hemorrhage (2.49, 2.30-2.69), congenital abnormalities (1.67, 1.33-2.09), pregnancy hypertensive disorders (1.49, 1.39-1.59), premature membrane rupture (1.16, 1.07-1.26), caesarean section (1.56, 1.51-1.60), low birth weight (1.65, 1.56-1.75) and prenatal mortality (1.87, 1.48-2.37). In comparison with spontaneous conception, singleton pregnancies after IVF/ICSI are associated with greater risks of obstetric and prenatal complications [13].

A meta-analysis by Jackson et al. reported in 2004, comparing 12,283 In vitro Fertilization singleton births to 1.9 million unassisted singleton births found increase rates of morbidity in the In vitro Fertilization group including preeclampsia [14].

Shevell et al. compared spontaneous pregnancies ( $n = 36,062$ ) to pregnancies conceived with ovulation induction ( $n = 12,222$ ) and IVF ( $n = 5,544$ ) and found that IVF was shown to be associated with gestational hypertension (OR 1.6 [1.0–2.5],  $P = 0.036$ ), preeclampsia (OR 2.7 [1.7–4.4],  $P < 0.001$ ), placental abruption (OR 2.4 [1.1–5.2],  $P = 0.03$ ), and placenta previa (OR 6.0 [3.4–10.7],  $P < 0.001$ ) [15].

Studies related to pre-eclampsia and eclampsia were reported from this region [16-18]. Thorat et al. [19] and Singh et al. [20] reported studies on different IVF related issues. Chadha et al. [21] and Dhingra et al. [22,4,5] reported about fetomaternal outcomes of hypertensive pregnancy. Studies on related aspects of pregnancy and maternal health were reviewed [6,20].

## 5. CONCLUSION

Pregnancy conceived with in vitro fertilization increasing the risk of gestational hypertension as well as fetal complication like intra uterine growth restriction. But timely treatment and management improves the outcome of pregnancy. To determine which aspect of assisted reproduction technology poses the most risk and how this risk can be minimized, further research is required.

## DISCLAIMER

The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

## CONSENT AND ETHICAL APPROVAL

As per international standard or university standard guideline patients consent and ethical

approval has been collected and preserved by the authors.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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