Molecular therapy for ectopic pregnancy

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ABSTRACT

Aim: The study aims to compare a combination of both gefitinib and methotrexate to methotrexate only in ectopic pregnancy.

Review: Ectopic pregnancies are a serious condition that can be fatal, so the prompt therapeutic is essential. There were some recent studies explained the combination is more effective inducing placental cell death. They can rapidly resolve ectopic tubal pregnancy than single methotrexate only. If a large clinical randomized control trial confirms these finding, these combinations could become a new medical option for ectopic pregnancy.

Conclusion: The combination of gefitinib and methotrexate is more effective than methotrexate one in ectopic pregnancy.

Keywords: ectopic pregnancy, gefitinib, methotrexate

INTRODUCTION

An ectopic pregnancy is a life-threatening condition that occurs when the fertilized ovum implants outside the endometrial cavity. Many of ectopic pregnancy is often asymptomatic or present with non-specific symptoms. Most of them are treated surgically, and even though it’s safe, several possible risks can occur such as abdominal obstruction, vessel injury and other complication. Alternative treatment has been increasingly applied to treat it since 90’s using methotrexate for small ectopic pregnancy with serum hCG concentration <1500 IU/L. It acts as an agonist antifolate as well as blocks both RNA synthesis and DNA replication. It rapidly lead thropoblast detached due to its sensitivity. Although, when we use it, it has an unacceptably high rate of failure. Once the serum hCG was >1500 IU/L, the cost does not more effective.

REVIEW

Placenta has the highest expression of the epidermal growth factor receptor (EGFR) compared with all other tissue types. Furthermore, the placenta relies on EGFR signalling heavily which promotes the cytotrophoblast motility, blocks apoptosis, and protects placental cells when exposed to stressors. Therefore, inhibiting EGFR signalling could negatively affect placental survival and could be a novel approach to treat ectopic pregnancy. Combining both methotrexate and gefitinib was significantly more effective in inducing placental cell death than using methotrexate one. Adding gefitinib to methotrexate induced significantly greater decreases in JEG3 tumour volume xenografted s.c. in NOD/SCID mice, compared with methotrexate alone. Furthermore, these agents increase the rates of resorption of eutopic fetuses in immunocompetent mice, compared with either drug alone. The preclinical data supported the exciting premise that combining them may be a promising treatment for ectopic pregnancy in the future.

Postmarketing surveillance of 31,045 people exposed to gefitinib had been reported to the FDA. Common side effects include a transient skin rash and diarrhoea. Gefitinib is associated with a rare but significant side effect of interstitial lung disease (ILD), a thickening of the lung parenchyma (0.3% incidence). As for these reasons, administering a short course of gefitinib to women will help to avoid all these risk factors for ILD and is likely to be a safety agenda. This trial yielded highly encouraging efficacy data. The median of post-treatment serum hCG levels over 7 days was less than one-fifth of levels observed among 71 prevalence controls treated with methotrexate alone. Notably, the median time for the ectopic pregnancies to resolve with combination therapy was 34% shorter compared with methotrexate alone (21 as against 32 days). A participant was treated successfully for ectopic pregnancy just in her remaining Fallopian tube (the other tube having been removed previously as a treatment for a prior ectopic pregnancy). She got subsequently pregnant.

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spontaneously and delivered a healthy child at term. Its situation means that the fallopian tubes exposed to the combination have still remained fertile.7

CONCLUSION

The combination of methotrexate and gefitinib could be a novel treatment in ectopic pregnancy and can reduce the number of women treated by surgical and its risks. It also allows for a more rapid resolution of ectopic pregnancies and even decreases the high rates of maternal losses caused by an ectopic pregnancy.

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