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The Use of Methotrexate in the Management of Ectopic Pregnancy

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Dear Editor,

Methotrexate is recommended as first line treatment for painless, unruptured ectopic pregnancies <35mm, with Human Chorionic Gonadotropin-beta (bHCG) <1,500IU/L, and no intrauterine pregnancy on ultrasound. It is the most commonly used drug for medical management of tubal ectopic pregnancy[1] and is given as a single intramuscular dose with bHCG levels measured on day four and seven.[2] Approximately 14% of patients will require more than one dose and under 10% will require surgical intervention.[2,3]

Success rates of methotrexate vary, often due to differing case criteria. Some studies examine confirmed ectopic pregnancies only whereas others include pregnancies of unknown location.[1] The largest study to date included 550 ectopic pregnancies and identified a success rate of 90.7% for methotrexate.[1] Specific characteristics can predict success or failure including the actual HCG level, the presence of a yolk sac, fetal pole and or cardiac activity.[1]

We present the findings of a three-year audit cycle at a tertiary maternity unit. The objectives were to identify how many patients received methotrexate for the treatment of suspected ectopic pregnancy and to identify whether their follow up conformed to hospital and international guidelines.

This retrospective cohort study included all patients who received methotrexate in the management of confirmed or suspected ectopic pregnancy over a three-year period (1st January 2016 to 31st October 2018). Both paper and electronic charts were used as the hospital recording system changed during the study timeline.

Ninety-eight cases were reviewed. Thirty-eight patients received methotrexate in 2016, thirty-six in 2017 and twenty-four between January and October 2018. Second dose requirements varied between 8.3% (2018) and 16% (2017). The rate of surgical management post-methotrexate was four (10.5%) in 2016 and four (11%) in 2017. There was an improvement in 2018 with only one case (4%) requiring surgical management post methotrexate.

Compliance with completion of urea and electrolytes as well as liver function tests prior to methotrexate improved over the course of the audit from 35/38 (92%) in 2016 to 100% for the following 2 years. In 2018 there was a stark improvement in recorded final HCG levels (100%) in comparison to 73% and 89% in previous years.

The strengths of this study lie in the completion of the audit cycle. By continually assessing the use of a high-tech medication such as methotrexate, patient safety is at the forefront of care. From a limitation perspective the small numbers of cases each year led to a reduced sample size. However, by reviewing results over three audit cycles the findings are consistent.

Regarding future research, the introduction of electronic health records since late 2017 allows for more extensive audit. The benefits were visible in the final year of this audit cycle and provide substantial grounds for further investigation to prove the improved patient safety that can be obtained, especially in the context of high-tech medications.

In conclusion, Methotrexate is a safe option in correctly identified patients. The levels of intervention for our centre are lower than or equal to minimum worldwide. Stark improvements were made in practice over the course of three audit cycles.

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References:

1. Royal College of Obstetricians and Gynaecologists. The Management of Tubal Pregnancy, Number 21. Greentop Guideline; 2004. Available from https://www.rcog.org.uk.
2. Lipscomb GH, McCord ML, Stovall TG, Huff G, Portera SG, Ling FW. Predictors of Success of Methotrexate Treatment in Woman with Tubal Ectopic Pregnancies. New England Journal of Medicine 1999;341:1974-1978.
3. Royal College of Obstetricians and Gynaecologists. The Management of Tubal Pregnancy, Number 21. Greentop Guideline; 2004. Available from https://www.rcog.org.uk.