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## Meeting Abstract

### Metamizole sodium may induce neural tube defects in a chick embryo model

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## Text

**Objective:** Metamizole sodium (dipyrone) is a common antipyretic drug and the most popular non-opioid analgesic in many countries. Pregnant womens sometimes use this drugs for acute pain attacks and high fever during the 1<sup>st</sup> and 2<sup>nd</sup> trimester of pregnancy. Clinical data of relating use metamizole sodium is inadequate during pregnancy. This study aimed to investigate the effects of metamizole sodium on the neural tube development in a chick embryo model that corresponds to the first month of vertebral development in mammals.

**Method:** Fourty Atabey<sup>®</sup> breed fertilized (genoblast) chicken eggs with no specific pathogens were randomly divided into 4 groups. All of the eggs were incubated at 37.8±2°C and 60±5% relative humidity in an incubator. Group A (control) was not subjected to any intervention and was incubated for 48 hours. The other eggs were applied serum physiological and drugs at a volume of 10 µL by in-ovo method at the

28<sup>th</sup> hour of the incubation period. Group B was given serum physiological; Group C, Metamizole sodium at a dose equivalent to the treatment dose for humans (30 mg/kg), and Group D, metamizole sodium at a dose of 3 times the treatment dose (90mg/kg). The embryos in all of the groups were removed from the shells at the 48<sup>th</sup> hour (12<sup>th</sup> stage based on Hamburger-Hamilton staging) and morphologically and histologically evaluated.

**Results:** Two embryos in the group A and one embryo in group B showed open neural tube defects. The other 17 embryos displayed normal development in group A,B and neural tubes were closed. All of the embryos had unclosed neural tubes in group C. One embryo was dead and 9 embryo had an unclosed neural tubes in Group D.

**Conclusions:** Metamizole sodium, at a dose equivalent to human treatment dose and higher 3 times the treatment dose, were shown to cause neural tube defects in chick embryos. In this study we found metamizole sodium has got teratogenic effects in a chick embryo model. Metamizole sodium may be associated with an increased risk of congenital abnormalities occurring in the children of women who use these drugs during pregnancy. However, further studies are needed.