

## Case Blog

# Paternal Use of Imatinib: A Case Report

P.G.J. Ter Horst\* and L.W. Mulder

Department of Clinical Pharmacy, Dr van Heesweg 2, Netherlands

## Case Blog

To report a case of imatinib use in a vasectomized patient and the use of condoms.

In September 2020, a 45 year-old- pre-menopausal female contacted the Medication Pregnancy and Lactation policlinic of the Isala Clinics (MAZ, Zwolle, and The Netherlands) for advice about the medication used by her spouse. He was treated with imatinib 400 mg once daily and they were told to have only sexual intercourse by using condoms for possible adverse events due to imatinib use. As he underwent vasectomy (both sides) a few years ago, they asked us for advice to whether or not using condoms.

As he was already vasectomized, possible teratologic effects of imatinib could be neglected, because there is no chance of spontaneous pregnancy. However, the advice of the treating physician to use condoms during sexual intercourse because of possible teratologic effects in the offspring is nowadays doubtful. A systematic review of Szakacs et al. [1] showed no increased number of malformations in the offspring of paternal use of imatinib in a cohort of 428 pregnancies.

Another possible risk could be direct effects of imatinib in the prostate fluid on the vaginal wall during sexual intercourse. A study of Chang et al. [2] shows that imatinib can penetrate semen with levels of  $1397 \text{ ng/ml} \pm 424 \text{ ng/ml}$  in eleven males of reproductive age; with comparable plasma levels. The imatinib found in this study could be originated from the spermatozoa or from the prostate fluid. It is well known that antimicrobial agents can penetrate the prostate at therapeutic levels [3]. However, prostate levels of imatinib were not reported as far as we know. Any local toxicity of imatinib has never been reported in literature.

Based on this information we decided to ask for a 'semen' sample and to analyze the concentration of imatinib. The last intake of imatinib 400 mg once daily was at 22:30 the day before sampling. At 10:30 the next day a sample was produced, and delivered at the hospital pharmacy of the Isala Clinics (Zwolle, the Netherlands). Using an LC-MSMS analyzer a concentration of 610 microgram/L

was found. With an estimated ejaculation volume of 3 ml to 5 ml, it possibly leads to an intravaginal exposure of 610 nanogram/ml (max. exposure 3 microgram imatinib). The intravaginal exposure would be negligible compared to oral exposure. As we measured at steady state concentrations, but not at maximum to be expected concentrations, the actual peak concentration may be higher, nevertheless negligible compared to oral exposure.

We reported to our patient that the use of condoms is no longer necessary because of low concentration of imatinib in her spouse prostate fluids and no reported local toxicity of imatinib.

## References

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**\*Corresponding author:** P.G.J. Ter Horst, Department of Clinical Pharmacy, Isala Klinieken, Dr van Heesweg 2, 8025 AB, Zwolle, Netherland, Tel: 0031 630162359; E-mail: p.g.j.ter.horst@isala.nl