

# Drug Treatment in Gynecology

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## Metformin: A candidate for the treatment of gynecological tumors based on drug repositioning (Review)

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**Abstract.** Metformin is a first-line drug used for the treatment of type 2 diabetes. Recently, metformin has been reported to reduce the carcinogenic risk and inhibit tumor cell growth in glioma and breast cancer. The anticancer action of metformin involves the enhancement of phosphorylation of liver kinase B1, activation of adenosine monophosphate-activated protein kinase and inhibition of mammalian target of rapamycin, which reduces cell growth. Metformin is anticipated to exert antitumor effects in gynecological cancer, and its efficacy for the treatment of endometrial, breast and ovarian cancer has been suggested in preclinical studies and clinical trials. Although the effect of metformin on cervical cancer remains to be examined in clinical trials, its antitumor effects have been reported in preclinical studies. Thus, the use of metformin for the treatment of gynecological cancer may become a successful example of drug repositioning, following establishment of the drug's antitumor effects, risk evaluation, screening and validation of efficacy.

### 1. Introduction

Metformin is an oral biguanide that is used worldwide for the treatment of type 2 diabetes (1). Previous studies have provided evidence that long-term administration of metformin may reduce the carcinogenic risk in various organs, and may have an inhibitory effect on cell growth in breast and colon cancer, as well as glioma (2,3). The mechanism underlying the antitumor effect of metformin is considered to involve the activation of adenosine monophosphate-activated protein kinase (AMPK) and inhibition of mammalian target of rapamycin (mTOR), which reduces cell growth (4). Focusing on gynecological cancer, as carcinogenesis in endometrial cancer appears to be associated with obesity, type 2 diabetes and hyperestrogenic conditions, metformin may be effective for prevention and improvement of prognosis in endometrial cancer (5). Thus, the effect of metformin on gynecological tumors, particularly endometrial cancer, is currently under investigation.

The aim of drug repositioning is to identify novel pharmacological effects for conventional drugs, in which human safety and pharmacokinetics are already established, and to expand the application of the drug for the treatment of additional diseases (6). As the adverse reactions of the repositioned drugs are known from previous clinical trials, safety is guaranteed, and the time and cost of drug discovery are considerably alleviated (6). Despite recent efforts, the efficacy of the existing antitumor drugs requires improvement, since they frequently cause adverse reactions, including nausea, vomiting, hair loss, nephrotoxicity and myelosuppression, which may limit their use. We hypothesize that by combining traditional antitumor drugs with novel antitumor agents identified by drug repositioning, improved therapeutic efficacy and reduced adverse reactions may be achieved. In the present review, the clinical application of metformin for the treatment of different types of gynecological cancer is evaluated from the perspective of drug repositioning.

### 2. Metformin in the treatment of type 2 diabetes

Metformin is an oral biguanide that is safe and cost-effective for the treatment of type 2 diabetes (1). Structurally, metformin contains two conjugated guanidine groups and an additional

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**Key words:** metformin, drug repositioning, endometrial cancer, ovarian cancer, breast cancer

Drugs used in Obstetrics and Gynaecology. [1] Drugs acting [2] Drugs inducing Ovulation. [3]. Respiratory . treatment should be discontinued after 3 cycles.Compare risks and benefits of common medications used for Gynecological Conditions. Find the most popular drugs, view ratings, user reviews, and more list of medications are in some way related to, or used in the treatment of this.Obstetrics and Gynaecology medication in common conditions. Anaemia. Premature labour. Seizures in eclampsia. Prevention and treatment .Obstetrics and Gynecology articles covering symptoms, diagnosis, staging, treatment, prognosis, and follow-up. out Cancel. Drugs and Diseases. Articles on.Drugs are used in over half of all pregnancies, and prevalence of use is increasing. The most commonly used drugs include antiemetics, antacids.rutacicliscastillosybatallas.com: Drug Treatment in Gynecology () by R. S. Ledward and a great selection of similar New, Used and Collectible Books available.Current problems in antibiotic treatment in obstetrics and gynecology. Anti- Bacterial Agents/therapeutic use\*; Bacterial Infections/drug therapy\*; Bacterial.FDA Approved Drugs for Obstetrics/Gynecology (Women's Health). Drugs Approved in Kisqali (ribociclib); Novartis; For the treatment of breast cancer .Most women (70%) completed an obstetricsgynecology appointment in the past CONCLUSIONS: Drug treatment clients have high unmet reproductive health.Gynecology and Obstetrics discusses the latest research innovations and Vaginal Surgery, Drug Treatment in GYNecologic Oncology, Placenta extract.Seeking obstetricgynecologic care should not expose a woman to criminal or civil The few drug treatment facilities in the United States accepting pregnant.Learn more about the effects of smoking, drinking alcohol, and drug use during pregnancy in this What is the treatment for opioid addiction during pregnancy?.Gynaecology or gynecology (see spelling differences) is the medical practice dealing with the . For lists of gynaecological drugs (by the ATC classification system), see ATC code Surgery, however, is the mainstay of gynaecological therapy.Mental health treatment (limited), obstetrics/gynecology AIDS treatment, alcohol and drug addiction, sex offender treatment (treatment programs budget) Mental.Obstetrics and gynecology is the medical specialty that deals with pregnancy, childbirth, and causes and interventional treatment of infertility; Gynecological oncology: a gynaecologic Addiction medicine Adolescent medicine Anesthesiology Dermatology Disaster medicine Diving medicine Emergency medicine.Obstetrics is the field of study concentrated on pregnancy, childbirth, and the postpartum period . The only treatment is to deliver the foetus. Women may still develop pre-eclampsia following delivery. Placental abruption is where the placenta detaches from.UCSF Medical Center is recognized as one of the top hospitals in the nation for gynecological care. Our doctors provide individualized, specialized care aimed.Pregnant women, but also physicians, have unrealistically high perceptions of teratogenic drug effects. This may result in suboptimal treatment of disease and.Obstetrics & Gynecology. Screening, Brief Intervention, and Referral to Treatment Illicit Drugs (Heroin, LSD, PCP, Ketamine,

MDMA, Marijuana/ Synthetic.

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