

Oncofertility Saturday Academy Poster Abstract Form

NAME: Ashna Aggarwal
 ADDRESS: _____
 CITY: STATE/PROVINCE: _____
 COUNTRY: _____ ZIP/POSTAL CODE _____
 PHONE: _____ FAX N/A
 E-MAIL ADDRESS _____

Abstract Categories

Check one only:

- Reproductive Biology In Vitro Fertilization Cancer Biology Oncofertility
 Other _____

ABSTRACT TITLE: The Effects of a History of Eating Disorders on Women's Fertility and Pregnancy

AUTHOR: Ashna Aggarwal

LEARNER OBJECTIVE: Please state the educational objective in a measurable, testable question. Then state what the participant's poster will be able to demonstrate to the viewer(s)/audience.

QUESTION: How might a history of eating disorders affect fertility and pregnancy in women?

The participant will be able to demonstrate: This poster will demonstrate how a history of eating disorders affects women's rates of undergoing fertility treatment, rates of twin births and unplanned pregnancies, and chances of complications during pregnancy.

CONTENT (TOPICS): Please provide a brief statement or outline of the content/topic(s) to be presented:
 The poster will discuss the correlation between the eating disorders Anorexia nervosa (AN) and Bulimia nervosa (BN) in women and the rates of fertility treatment, twin births, unplanned pregnancies and pregnancy complications.

ABSTRACT: Abstract content should be single spaced, typed using (10-12 pt font) and between 250-300 words. The abstract content should be typed in the space below and **MUST** include the following:

Anorexia nervosa (AN) and Bulimia nervosa (BN) are two eating disorders that are associated with serious medical complications. Past studies have determined that complications can arise from eating disorder behaviors during pregnancy, such as low birthweight and increased odds of Caesarean birth. This research poster will focus rather on the impact of a history of eating disorders on the fertility and pregnancy of women. This history can account for increased rates of fertility treatments, twin births, unplanned pregnancies, and pregnancy complications as compared to women with a history of other psychiatric disorders or no psychiatric disorders. In one study, a group of women from Generation R (a prospective general population cohort study based in Rotterdam, the Netherlands at the Erasmus Medical Centre) was broken down into those who reported a history of AN, those who reported a history of BN, those who reported a history of both AN and BN, those who reported a history of other psychiatric disorders, and those who reported no history of psychiatric disorders. Women were eligible to enroll in the study if they had a due date between April 2002 and January 2006; of the 8880 recruited, 6328 women were selected based on the women's completion of a questionnaire used to determine exposure for the study and the exclusion of women with missing items on exposure. Information about the patients' psychiatric history was obtained from patients' self-evaluation based on a provided medical vignette. Data regarding fertility treatment and twin births was obtained from obstetric records, and data regarding unplanned pregnancies and women's feelings about unplanned pregnancies was obtained from a questionnaire given to women upon enrollment. The study showed that women with BN history were approximately 2-3 times more likely to seek fertility treatment as a result of their BN history, and women with AN history were about half as likely to seek fertility treatment as a result of their AN history, as compared to women with other histories. Additionally, it was found that any history of eating disorders is associated with increased rates of twin births, and that AN and AN+BN history is associated with increased rates of unplanned pregnancies and continued mixed feelings regarding this pregnancy. Another study of Generation R women by the same group of scientists showed that a history of AN is associated with fetal distress, and that a history of AN+BN is associated with hospitalization during pregnancy. It can be concluded from these studies that a history of eating disorders can have serious medical consequences on the fertility and pregnancy of women.

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Oncofertility Saturday Academy Poster Abstract Form

NAME: Simran Budhwani
ADDRESS: _____
CITY: STATE/PROVINCE: _____
COUNTRY: _____ ZIP/POSTAL CODE _____
PHONE: _____ FAX N/A
E-MAIL ADDRESS _____

E-MAIL ASBTRACT FORM TO: Dr. Ericka Senegar-Mitchell at ebellmitchell@yahoo.com (Please cc Mrs. Patricia Winter at patriciawinter09@gmail.com)

Abstract Categories

Check one only:

- Reproductive Biology In Vitro Fertilization Cancer Biology Oncofertility
 Other _____

ABSTRACT TITLE: Comparison of Live Birth Rates From Embryo and/or Egg Cryopreservation Via Vitrification

AUTHOR: Simran Budhwani

LEARNER OBJECTIVE: Please state the educational objective in a measurable, testable question. Then state what the participant's poster will be able to demonstrate to the viewer(s)/audience.

QUESTION: How does embryo versus egg cryopreservation via vitrification affect the rate of live births for patients undergoing assisted reproduction?

The participant will be able to demonstrate: This research poster will compare the live birth rates which result from the cryopreservation of either an embryo or an oocyte (egg). In addition, the correlation between maternal age at implantation of the cryopreserved embryo or egg and live birth rates will also be established

CONTENT (TOPICS): Please provide a brief statement or outline of the content/topic(s) to be presented:

A comparison between the two preferred stages of development, embryo freezing and egg freezing, will be measured by live birth rates through vitrification. Furthermore, this research will identify the influential factor of maternal age during the time of implantation which can have a downstream effect on live birth rates.

ABSTRACT: Abstract content should be single spaced, typed using (10-12 pt font) and between 250-300 words. The abstract content should be typed in the space below and **MUST** include the following:

Cryopreservation, or the process in which reproductive factors such as eggs, tissue, ovaries, and embryos are frozen to be used at a later time, has become increasingly popular with women who have fertility issues, either from genetic or external factors such as cancer treatment. Within the presented research is a comparison between the two most prevalent forms of fertility preservation--egg and embryo freezing-- and how effective each treatment is as indicated by successful live births. A university-based hospital in East Asia conducted a study of live birth rates of embryos by vitrification versus slow freezing. The study contained 8,824 cryopreserved human cleavage stage embryos of which 7,482 were vitrified while 1,342 were frozen by slow freezing. The survival rate of the vitrified embryos was far greater compared to slow freezing, with a 15:1 ratio. A second study done, citing meta analysis data from different reproductive centers using both vitrification and slow freezing of oocytes demonstrates that vitrification still has higher survival rates. Out of the 13,079 total oocytes that were thawed, there was an 85% survival rate of those oocytes that underwent vitrification. Vitrification is a new type of freezing method that has proven more successful due to its use of high cryoprotectants and ability to eliminate intracellular and extracellular ice formation since it solidifies to a glasslike state faster than slow freezing. This research will demonstrate further information of how using vitrification as a freezing method, with an embryo or egg results in higher live birth rates. Along with this, it will inform patients about the comparison between freezing your embryo versus your egg, and how the age of implantation can determine your chances of a live birth.

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Oncofertility Saturday Academy Poster Abstract Form

NAME: Nayeli Diez de Bonilla

ADDRESS: _____

CITY: STATE/PROVINCE: _____

COUNTRY: _____

ZIP/POSTAL CODE _____

PHONE: _____

FAX N/A _____

E-MAIL ADDRESS _____

E-MAIL ASBTRACT FORM TO: Dr. Ericka Senegar-Mitchell at ebellmitchell@yahoo.com (Please cc Mrs. Patricia Winter at patriciawinter09@gmail.com)

Abstract Categories

Check one only:

Reproductive Biology

In Vitro Fertilization

Cancer Biology

Oncofertility

Other _____

ABSTRACT TITLE: The Potential Role of LPA as a Biomarker for Early Stage Epithelial Ovarian Cancer Compared to CA-125

AUTHOR: Nayeli Diez de Bonilla

LEARNER OBJECTIVE: Please state the educational objective in a measurable, testable question. Then state what the participant's poster will be able to demonstrate to the viewer(s)/audience.

QUESTION: Is Lysophosphatidic acid a better early stage epithelial ovarian cancer biomarker than CA-125?

The participant will be able to demonstrate: Lysophosphatidic acid has shown potential as a biomarker for epithelial ovarian cancer and has shown higher sensitivity to early stage ovarian cancer than CA-125. CA-125 is a cancer antigen currently used in the method of diagnosing and monitoring ovarian cancer, but it has a very high false negative rate when it comes to diagnosing early stage ovarian cancer.

CONTENT (TOPICS): Please provide a brief statement or outline of the content/topic(s) to be presented:

Ovarian cancer is one of the deadliest gynecological cancers, but if it is detected in a localized state, survival rates are very high. Unfortunately, most of the time it is diagnosed in a late stage due to the poor methods of detection in use today involving monitoring CA-125 levels in high-risk women. It is this posters purpose to address the urgent need for a method of detecting early stage ovarian cancer that is sensitive enough to screen the general population. Lysophosphatidic acid has shown promise as a potential biomarker for early stage epithelial ovarian cancer and has the potential to fill this pressing need.

ABSTRACT: Abstract content should be single spaced, typed using (10-12 pt font) and between 250-300 words. The abstract content should be typed in the space below and **MUST** include the following:

Ovarian cancer is in the top 20 of cancer incidences reported globally, but more than 70% of ovarian cancer cases are diagnosed in a late stage. Due to the lack of inefficiency in the current methods used for screening ovarian cancer, only women who are identified as high risk are screened but data suggests that we could be doing more to detect ovarian cancer in an earlier stage, not limited to high risk women. Finding a biomarker for ovarian cancer that is present even in the early stages would provide doctors with the ability to detect ovarian cancer earlier, therefore possibly reducing the amount of deaths attributed to this disease. CA-125 is a cancer antigen that is primarily used to detect and monitor the response of ovarian cancer to treatment, but this method leads to a lot of false positives which is why it isn't recommended for the general public. Many studies have been published where researchers compared the levels of CA-125 and Lysophosphatidic acid (LPA) in the bloodstream of three categories of women: healthy women, women with benign ovarian tumors, and women with epithelial ovarian cancer (EOC) at different stages. Using the cutoff level of 35 U/L for CA-125 and 1.3 μ mol/L for LPA, researchers were able to compare the specificity and sensitivity of these potential biomarkers to early stage ovarian cancer. Researchers found that initial levels of LPA were significantly higher in patients with EOC than in patients with benign ovarian tumors and healthy women. Researchers determined that measuring LPA levels were a better method of diagnosing ovarian cancer, but that monitoring CA-125 levels after the detection of cancer was the more effective way to monitor the disease's response to treatment. Overall, LPA has proven to be a promising biomarker for EOC, but further studies should be conducted to confirm the role of LPA in EOC and to determine the potential role of LPA in other gynecological cancers. If measuring LPA levels could become the widespread method of screening for ovarian cancer, countless lives could be spared through early detection.

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Oncofertility Saturday Academy Poster Abstract Form

NAME: Emmelie Finley _____
ADDRESS: _____
CITY: STATE/PROVINCE: _____
COUNTRY: USA _____ ZIP/POSTAL CODE _____
PHONE: _____ FAX N/A _____
E-MAIL ADDRESS _____

E-MAIL ASBTRACT FORM TO: Dr. Ericka Senegar-Mitchell at ebellmitchell@yahoo.com (Please cc Mrs. Patricia Winter at patriciawinter09@gmail.com)

Abstract Categories

Check one only:

- Reproductive Biology In Vitro Fertilization Cancer Biology Oncofertility
 Other _____

ABSTRACT TITLE: Effects of Autologous and Allogeneic Bone Marrow Transplants On Female Fertility

AUTHOR: Emmelie Finley

LEARNER OBJECTIVE: Please state the educational objective in a measurable, testable question. Then state what the participant's poster will be able to demonstrate to the viewer(s)/audience.

QUESTION: How do Autologous BMT and Allogeneic BMT used in the treatment of leukemia affect female fertility?

The participant will be able to demonstrate: This poster will explain how the reported differences the bone marrow transplant treatments may be associated with negative effects on female fertility.

CONTENT (TOPICS): Please provide a brief statement or outline of the content/topic(s) to be presented: Patients with leukemia can receive chemotherapy, autologous BMT, and allogeneic BMT. Allogeneic BMT as well as the preparation radiation for that treatment, TBI, caused infertility in more patients than other treatments. Doctors can use this information to explain the possible long-term effects of each treatment so the patient has a clear outlook of the potential effects before beginning treatment and therefore is more knowledgeable about the treatments they will be receiving.

ABSTRACT: Abstract content should be single spaced, typed using (10-12 pt font) and between 250-300 words. The abstract content should be typed in the space below and **MUST** include the following:

Several post leukemia patients have reported a loss or hindrance of infertility after treatment. Three major treatments (chemotherapy, Allogeneic BMT, and Autologous BMT) are possibly associated with infertility. Chemotherapy is radiation that kills off cancer cells, allogeneic BMT is a bone marrow transplant that requires a donor, and autologous BMT is a bone marrow transplant from the patient's own body. Doctors conducted multiple studies to discover any possible effects that could be observed in the fertility of post-treatment leukemia patients. In a particular study, doctors admitted 576 women into the study whose ages ranged between 10 to 60 years old. However, 25 women were removed from the study. The participants received one of three treatments: chemotherapy, analogous BMT, or allogenic BMT. By the end of the study, only 98 patients completed the follow-up questionnaire, which provided a summary of the quality of their lives after treatment. In particular, the sexual disorder questionnaire revealed that infertility occurred in 32 (one third) of all patients, especially in the Allogeneic BMT-treated patients. Thirty-four patients who either underwent ABMT or Allogeneic BMT procedures also reported painful sexual intercourse. Doctors concluded that Allogeneic BMT resulted in more infertile patients than the other two leukemia treatments. Other doctors who have conducted similar studies also show similar results and agree that allogeneic BMT causes 83% of women to lose their fertility due to gonad damage. Gonadal damage occurs when oogenesis is affected and the production of oestrogen and progesterone is decreased. Preparation for Allogeneic BMT, such as TBI, also increases the patient's chances of infertility from 80% to 89%. Doctors should further examine if any combination of these three treatments against one, for example, chemotherapy and autologous BMT against just autologous BMT, will increase the chance of preserving fertility. Doctors should recommend chemotherapy or autologous BMT to patients who preferably want to save their fertility. In sum, patients will understand the effects different bone marrow treatments have on fertility and will be provided with reassurance by being aware of the potential risks before they are treated.

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NAME: Maya Gabby
 ADDRESS: _____
 CITY: STATE/PROVINCE: _____
 COUNTRY: United States ZIP/POSTAL CODE _____
 PHONE: _____ FAX N/A
 E-MAIL ADDRESS _____

E-MAIL ASBTRACT FORM TO: Dr. Ericka Senegar-Mitchell at ebellmitchell@yahoo.com (Please cc Mrs. Patricia Winter at patriciawinter09@gmail.com)

Abstract Categories

Check one only:

- Reproductive Biology In Vitro Fertilization Cancer Biology Oncofertility Bioethics

ABSTRACT TITLE: Oncofertility Potential in Fertility Preservation Among Transgender Youth

AUTHOR: Maya M. Gabby

LEARNER OBJECTIVE: Please state the educational objective in a measurable, testable question. Then state what the participant’s poster will be able to demonstrate to the viewer(s)/audience.

QUESTION: How can fertility preservation techniques enhance quality of life for transgender youth?

The participant will be able to demonstrate: The poster will highlight current oncofertility practices that can and should be adapted for use in the transgender community. Specific attention will be given to the ethics and quality of life potential for transgender youth.

CONTENT (TOPICS): Please provide a brief statement or outline of the content/topic(s) to be presented:

Recent developments in Oncofertility provide hope for minors undergoing cancer treatment to retain their fertility in adulthood. Minors who are transitioning to preserve future quality of life can utilize these same procedures.

ABSTRACT: Abstract content should be single spaced, typed using (10-12 pt font) and between 250-300 words. The abstract content should be typed in the space below and **MUST** include the following:

The ideas and processes surrounding fertility preservation have been long debated topics in the medical world. The development and success of IVF (in vitro fertilization) in the field of Oncofertility has opened doors to many men and women. It has been used with those that are infertile and those with cancer who are at a high risk of damaging their fertility. In these contexts, many fertility procedures have become routine. These procedures can be applied to transgender youth as well. However, they face many of the biases that once surrounded now standard procedures. Hormonal regimens employed by young people during their transitions can cause fertility to be lost forever. There is a critical window of development if a young person wishes to suppress puberty. In the past, loss of fertility was viewed as “the cost of transitioning;” this is no longer a scientific inevitability. Fertility preservation processes are becoming more accepted in the medical community when applied to minors with cancer. On the other hand, personal beliefs have prevented acceptance of application to transgender peoples. It is important to consider that when a youth is preparing to begin cross sex hormones or undergo sexual reassignment surgery, they may not be considering a desire for a future family or child. By giving them the opportunity to preserve their fertility, scientists can keep the option of a family open. Viable options for post pubescent youth include egg freezing and sperm collection. A study done on transgender demographics used multiple surveys, mental health screening, and risk behavior assessment to conduct a statistical analysis of the participants. A study done in Sweden focused on nine transmasculine people. It analyzed clinical characteristics, fertility preservation procedures (and outcomes), and assessed patients’ psychological perceptions. There are now guidelines in place for the use of puberty suppressing drugs and hormonal regimens for youth. However, these guidelines do not include recommendations for oncofertility treatments. A few studies have begun to collect information on whether or not transgender people wish to have biological families. While results vary, many people would have pursued fertility preservation if presented the option. Still, there are cases where this technology has been employed in the transgender community. There are a host of ethical concerns that are only now beginning to be addressed. In time, these cases may be accepted in the manner of earlier procedures. These technologies provide a world of opportunity, and should not exclude any one group of people. Thus, utilizing fertility preservation in transgender youth needs to remain an open dialogue.

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Eyler, E. A., Pang, S. C., & Anderson, C. (2014). LGBT Assisted Reproduction: Current Practice and Future Possibilities. *LGBT Health, 1*(3). Retrieved August 4, 2015.

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Oncofertility Saturday Academy Poster Abstract Form

NAME: Isabel Gandarilla

ADDRESS: _____

CITY: STATE/PROVINCE: _____

COUNTRY: USA

ZIP/POSTAL CODE _____

PHONE: _____

FAX N/A

E-MAIL ADDRESS _____

E-MAIL ASBTRACT FORM TO: Dr. Ericka Senegar-Mitchell at ebellmitchell@yahoo.com (Please cc Mrs. Patricia Winter at patriciawinter09@gmail.com)

Abstract Categories

Check one only:

Reproductive Biology

In Vitro Fertilization

Cancer Biology

Oncofertility

Other _____

ABSTRACT TITLE: Treating cervical cancer with monoclonal antibody bevacizumab.

AUTHOR: Isabel Gandarilla

LEARNER OBJECTIVE: Please state the educational objective in a measurable, testable question. Then state what the participant's poster will be able to demonstrate to the viewer(s)/audience.

QUESTION: Can cervical cancer be effectively treated with monoclonal antibodies while decreasing the treatments late effects and increasing patient survival time?

The participant will be able to demonstrate: The poster will demonstrate how usage of the bevacizumab antibody to treat cervical cancer is effective and improves survival rates of woman with cervical cancer. The poster will also demonstrate the improved quality of life after bevacizumab treatment.

CONTENT (TOPICS): Please provide a brief statement or outline of the content/topic(s) to be presented:

The monoclonal antibody bevacizumab, in addition to chemotherapy, is more effective at treating cervical cancer than chemotherapy alone. The bevacizumab antibody is used to treat cervical cancer by imitating the immune system and eliminating the cancerous cells. This treatment option is less invasive and more effective than chemotherapy alone.

ABSTRACT: Abstract content should be single spaced, typed using (10-12 pt font) and between 250-300 words. The abstract content should be typed in the space below and **MUST** include the following:

In many developing regions in Latin America, Asia, and India, cervical cancer continues to be a leading cause of death in women. Many survivors continue to have long-term effects due to treatment options such as chemotherapy and radiation. In the case of cervical cancer, an alternative that is being tested is the use of the monoclonal antibody bevacizumab, which imitates the immune system and degrades the cancerous cells; providing not only an effective cure for cervical cancer but less prevalence of late effects after the treatment. The effect of the monoclonal antibody was tested on 452 female patients with metastatic (stage 4) cervical cancer who were then divided randomly into two overarching groups. The first group received two standard doses of chemotherapy drugs: 50 mg of cisplatin per square meter of body area as well as a 135/175 mg dose per square meter of paclitaxel. The second group, in addition to the chemotherapy, received a 15mg/kg dose of the antibody. The study found that the group with a combined regimen of chemotherapy and bevacizumab had an extended survival rate of about 4 months (13.3 vs. 17.0 months). In addition, patients who received the antibody as part of their treatment had a higher response rate to the treatment (36% vs. 48%). Finally, those who were treated with the antibody also had fewer neurotoxic symptoms than the patients treated only with chemotherapy. Overall, the use of the monoclonal antibody bevacizumab in addition to chemotherapy was most effective at treating cervical cancer. The combined treatment extended the survival rate of patients while decreasing traumatic symptoms. In comparison, those patients treated with chemotherapy alone experienced a higher number of late effects and a shorter survival rate. Therefore, the effective use of the monoclonal antibody bevacizumab to treat cervical cancer indicates the development of a promising alternative to cancer treatment.

REFERENCES:

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Oncofertility Saturday Academy Poster Abstract Form

NAME: Emma Ling _____

ADDRESS: _____

CITY: STATE/PROVINCE: _____

COUNTRY: USA _____

ZIP/POSTAL CODE _____

PHONE: _____

FAX N/A _____

E-MAIL ADDRESS _____

E-MAIL ASBTRACT FORM TO: Dr. Ericka Senegar-Mitchell at ebellmitchell@yahoo.com (Please cc Mrs. Patricia Winter at patriciawinter09@gmail.com)

Abstract Categories

Check one only:

Reproductive Biology

In Vitro Fertilization

Cancer Biology

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Other _____

ABSTRACT TITLE: The Effect of Preimplantation Genetic Screening and Preimplantation Genetic Diagnosis on Child Development

AUTHOR: Emma F. Ling

LEARNER OBJECTIVE: Please state the educational objective in a measurable, testable question. Then state what the participant's poster will be able to demonstrate to the viewer(s)/audience.

QUESTION: What are the effects of preimplantation genetic screening (PGS) and/or preimplantation genetic diagnosis (PGD) on the health and development of PGS selected children?

The participant will be able to demonstrate: PGS/PGD have been shown to have no correlation to child development issues.

CONTENT (TOPICS): Please provide a brief statement or outline of the content/topic(s) to be presented:

Preimplantation genetic screening (PGS) improves the live birth rate of IVF pregnancies by discarding aneuploid embryos that are associated with heightened risk for birth defects and genetic disorders while preimplantation genetic diagnosis is designed to prevent the implantation of embryos with genetic disorders or undesirable genes. The embryo biopsy process utilized in PGS/PGD has been shown to have no effect on the development of children born from embryos selected using PGS/PGD.

ABSTRACT: Abstract content should be single spaced, typed using (10-12 pt font) and between 250-300 words. The abstract content should be typed in the space below and **MUST** include the following:

Preimplantation genetic screening (PGS) and preimplantation genetic diagnosis (PGD) are new technologies that are used in vitro fertilization (IVF) treatment to help select blastocysts for implantation that will lead to a successful pregnancy and choose embryos with the optimal genes, respectively. PGS is commonly confused with PGD; however, they are different in that PGS only screens for genetic mutations that reduce the likelihood of implantation and/or increase the likelihood of miscarriage such as aneuploidy, while PGD screens out embryos with specific genes that the parents deem undesirable, such as the BRCA1/2 mutation. They are similar in that both utilize embryo biopsy to perform genetic tests on one or two cells from each embryo. Concerns about the possible harms of embryo biopsy used in PGS/PGD have led to several studies on their effect on the health and development of children. These studies are necessary to assess the risks of PGS/PGD, two invasive procedures often recommended to advanced maternal age and repetitive failure IVF patients. Research in the area of child development utilized anthropometric data at birth, two months, two years, and four years and neurological assessment of general movements, motor skills, mental development, and behavioral development at infancy, two years, and four years to compare the development of PGS/PGD children with IVF and natural conception children. Neurological examination utilized the Hempel test to classify the mental health of children into categories: neurologically normal, simple motor neurone disease (MND), complex MND, or neurologically abnormal. Other methods employed include IQ testing to assess cognitive ability and the child behavior checklist to investigate behavioral development. Physical development was measured using weight; height; arm, waist, and head circumference; and counting morphological abnormalities, classifying them into major and minor categories. The results of these studies show that PGS/PGD children have no significant morphological or neurological health differences from other IVF children and the general population up to four years of age. Further studies are required to determine the long-term neurological and physical effects past age four before PGS/PGD are recognized as low-risk procedures for IVF/ICSI treatments.

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Middelburg KJ, van der Heide M, Houtzager B, Jongbloed-Pereboom M, Fidler V, Bos AF, Kok J, Hadders-Algra M; PGS Follow-up Study Group. *Mental, psychomotor, neurologic, and behavioral outcomes of 2-year-old children born after preimplantation genetic screening: follow-up of a randomized controlled trial.* *Fertil Steril.* 2011 Jul;96(1):165-9.

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Oncofertility Saturday Academy Poster Abstract Form

NAME: Jessica Lozano

ADDRESS: _____

CITY: STATE/PROVINCE: _____

COUNTRY: USA

ZIP/POSTAL CODE _____

PHONE: _____

FAX N/A

E-MAIL ADDRESS _____

E-MAIL ASBTRACT FORM TO: Dr. Ericka Senegar-Mitchell at ebellmitchell@yahoo.com (Please cc Mrs. Patricia Winter at patriciawinter09@gmail.com)

Abstract Categories

Check one only:

Reproductive Biology

In Vitro Fertilization

Cancer Biology

Oncofertility

Other _____

ABSTRACT TITLE: The Result of Fertility Drugs in Younger Women.

AUTHOR: Jessica Lozano

LEARNER OBJECTIVE: Please state the educational objective in a measurable, testable question. Then state what the participant's poster will be able to demonstrate to the viewer(s)/audience.

QUESTION: Does clomiphene citrate and follicle-stimulating hormone promotes breast cancer in younger female patients?

The participant will be able to demonstrate: The poster will prove that fertility drugs such as clomiphene citrate and follicle stimulating hormone promote breast cancer in female patients younger than fifty years old.

CONTENT (TOPICS): Please provide a brief statement or outline of the content/topic(s) to be presented:

Many women today are using IVF for another opportunity of becoming a mother. This poster will focus on fertility drugs such as clomiphene citrate and follicle stimulating hormone and how it increases the risk of younger women developing breast cancer.

ABSTRACT: Abstract content should be single spaced, typed using (10-12 pt font) and between 250-300 words. The abstract content should be typed in the space below and **MUST** include the following:

Fertility Drugs stimulate the release of multiple eggs during ovulation which increases significantly the amount of estrogen in the young women's body. The large amount of estrogen promotes the growth of hormone-receptor-positive breast cancer cells which may cause breast cancer. The objective is to examine the relationship between fertility drugs such as clomiphene citrate [CC] and follicle-stimulating hormone [FSH] and the risk of female patients younger than 50 years at diagnosis of getting breast cancer. Researched conducted a sister-matched case-control study, by recruiting 1,422 women, younger than 50 years with a diagnosis of breast cancer and the 1,669 breast cancer-free control sisters were register for a 4 years diagnosis. Each women reported the use of clomiphene citrate [CC] and follicle-stimulating hormone [FSH] and whether or not a pregnancy occurred lasting 10 weeks or more. Condition logistic regression was then used to estimate the odd ratios and the 95% confidence intervals for women taking fertility drugs with and without a pregnancy lasting 10 weeks or more. Women who used ovulation-stimulating drugs and women who did take fertility drugs but didn't reach more than a 10 weeks pregnancy showed a notably decreased possibility of breast cancer measured with women who had never used fertility drugs. Participants who did use ovulation-stimulating drugs and did reached more than 10 weeks pregnant reveal an increased possibility of breast cancer measured with women who did not reach the 10 week mark, still the possibility of breast cancer did not increase measured with participants who did not use ovulation-stimulating drugs. Women who used ovulation-stimulating drugs and women who did take fertility drugs but didn't reach more than a 10 weeks pregnancy showed a notably decreased possibility of breast cancer measured with women who had never used fertility drugs. Participants who did use ovulation-stimulating drugs and did reached more than 10 weeks pregnant reveal an increased possibility of breast cancer measured with women who did not reach the 10 week mark, still the possibility of breast cancer did not increase measured with participants who did not use ovulation-stimulating drugs.

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Oncofertility Saturday Academy Poster Abstract Form

NAME: Quynh Nguyen
ADDRESS: _____
CITY: STATE/PROVINCE: _____
COUNTRY: United States ZIP/POSTAL CODE _____
PHONE: _____ FAX N/A
E-MAIL ADDRESS _____

E-MAIL ASBTRACT FORM TO: Dr. Ericka Senegar-Mitchell at ebellmitchell@yahoo.com (Please cc Mrs. Patricia Winter at patriciawinter09@gmail.com)

Abstract Categories

Check one only:

- Reproductive Biology In Vitro Fertilization Cancer Biology Oncofertility
 Other _____

ABSTRACT TITLE: **The Effectiveness of Targeted Therapy in Make Treatment Resistant Tumor Cells More Sensitive with Olaparib**

AUTHOR: **Quynh Nguyen**

LEARNER OBJECTIVE: Please state the educational objective in a measurable, testable question. Then state what the participant's poster will be able to demonstrate to the viewer(s)/audience.

QUESTION: How does the combined administration of 400mg Olaparib and platinum-based chemotherapy compare to other combination and monotherapies in reverting treatment resistant tumor cells to a sensitive state in reoccurring ovarian cancer patients?

The participant will be able to demonstrate: This poster will demonstrate about the effectiveness of these group therapies: Combined administration of 400mg Olaparib and platinum-based chemotherapy, other combinations, and monotherapy Olaparib to see which group makes treatment resistant ovarian tumor cells more sensitive.

CONTENT (TOPICS): Please provide a brief statement or outline of the content/topic(s) to be presented: Olaparib is a novel, orally active poly(ADP-ribose) polymerase (PARP) inhibitor that induces synthetic lethality in homozygous *BRCA*-deficient cells. Since we know that more people get effected with *BRCA1/2* which is linked to ovarian-breast cancer. Some patients are in stage 3/4 of these cancers. The focus of this study is to see what is the best treatment resistant tumor cell.

ABSTRACT: Abstract content should be single spaced, typed using (10-12 pt font) and between 250-300 words. The abstract content should be typed in the space below and **MUST** include the following:

Ovarian cancer is the fifth leading cause of cancer death in women; approximately 10% of all ovarian cancers are hereditary and of these, more than 90% are associated with *BRCA1* or *BRCA2* germline mutation. Scientist discoverers that targeted therapies are a new type of cancer treatment that uses drugs or other substances to find and attack cancer cells while doing little damage to normal cells. There are 2 types and each works different: Bevacizumad and Olaparib. Bevacizumad works as angiogenesis inhibitor, which helps, block the formation of new blood vessels and as a combination use with standard chemotherapy for cancers approved it by FDA. Meanwhile, Olaparib is one new type therapy of PARP inhibitor, which is a repair of DNA single-stranded breaks (SSB) through via homologous- recombination repair pathway. This is why the focus of this study is to see what is the most effective therapy that can revert tumor cell from resistance state to sensitivity state in ovarian cancer. In this study, we will compare three different groups of therapy: Combined administration of 400mg Olaparib and platinum based chemotherapy, monotherapy Bevacizumab; monotherapy Olaparib. The result of this study is the objective response rate (ORR) in group-combined Olaparib and platinum-based therapy is 12%; for administration of monotherapy Bevacizumab 10mg is 21%. However, the objective response rate for group monotherapy Olaparib 400mg is 33%. In addition, the Progression-free survival (PFS) of Bevacizumab group itself is 4.7 months, combined administration of 400mg Olaparib and platinum-based therapy is 8 months and for Olaparaib group itself is 9 months. The conclusion of study prove that monotherapy Olaparib 400 mg twice daily has antitumor activity heavily on ovarian cancer. Monotherapy Olaparib proves that it has most effective in revert treatment resistant tumor cells to a sensitive stage in recurrent ovarian cancer patients.

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Oncofertility Saturday Academy Poster Abstract Form

NAME: Kathleen Pulvers

ADDRESS: _____

CITY: STATE/PROVINCE: _____

COUNTRY: _____

ZIP/POSTAL CODE _____

PHONE: _____

FAX N/A _____

E-MAIL ADDRESS _____

E-MAIL ASBTRACT FORM TO: Dr. Ericka Senegar-Mitchell at ebellmitchell@yahoo.com (Please cc Mrs. Patricia Winter at patriciawinter09@gmail.com)

Abstract Categories

Check one only:

Reproductive Biology

In Vitro Fertilization

Cancer Biology

Oncofertility

Other _____

ABSTRACT TITLE: The Effects of Mitochondrial DNA on Embryonic Implantation

AUTHOR: Kathleen Pulvers

LEARNER OBJECTIVE: Please state the educational objective in a measurable, testable question. Then state what the participant's poster will be able to demonstrate to the viewer(s)/audience.

QUESTION: What are the Effects of Mitochondrial DNA Levels on Embryonic Implantation?

The participant will be able to demonstrate: This poster will demonstrate the effects that high and low levels of mitochondrial DNA has on the success rate of embryonic implantations.

CONTENT (TOPICS): Please provide a brief statement or outline of the content/topic(s) to be presented:

The embryos from women ranging from twenty-six to forty-two years old will be transferred and observed for any signs of implantation. The amount of mtDNA in the implanting and non-implanting embryos will be measured and compared to each other. The varying levels will be able to determine the relationship between a high maternal age, high mtDNA levels, and low implantation rates.

ABSTRACT: Abstract content should be single spaced, typed using (10-12 pt font) and between 250-300 words. The abstract content should be typed in the space below and **MUST** include the following:

As maternal age increases, the chance of embryonic chromosomal abnormalities as well as complications with implantation increases. Abnormal mitochondrial activity can damage oocytes by causing augmentation of reactive oxygen super-oxides in the cell, affecting implantation rates. The mitochondrial genome proofreading system is not as strong as the nuclear genome's, so chromosomally normal (euploid) blastocysts have lower levels of mtDNA than chromosomally abnormal (aneuploid) blastocysts. In one study done, 92.9% of euploid embryos developed into blastocysts while 42.1% of aneuploid embryos developed into blastocysts; a possible connection could be the 75% chance of aneuploidy in the oocytes of women over 40 years old. Through real-time Polymerase Chain Reaction (PCR), microarray comparative genomic hybridization (aCGH), and next generation sequencing (NGS), the mtDNA levels in the embryonic genome can be measured. The data will reflect the amount of mtDNA in the embryos and will then be observed for implantation potential. The patients were in IVF clinics in the US and UK; gender and age ranges were kept constant for the duration of the study. The ranges for reproductively younger women were age 26-37 and reproductively older women were age 38-42. Successful implantations were shown where maternal age was low and where mtDNA levels were 0.003 or lower. Where mtDNA levels were higher than 0.003, and came from maternally older women, the embryos had a lower tendency to implant. The data suggests that high levels of mtDNA increase embryonic implantation failures that points to a connection among maternal age, mtDNA, and embryonic implantations for both euploid and aneuploid blastocysts. Therefore the factors of maternal age, euploidy/aneuploidy, and embryonic mtDNA influence the success rates of implantation.

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Oncofertility Saturday Academy Poster Abstract Form

NAME: Mikaila Reyes
ADDRESS: _____
CITY: STATE/PROVINCE: _____
COUNTRY: USA ZIP/POSTAL CODE _____
PHONE: _____ FAX N/A _____
E-MAIL ADDRESS _____

E-MAIL ASBTRACT FORM TO: Dr. Ericka Senegar-Mitchell at ebellmitchell@yahoo.com (Please cc Mrs. Patricia Winter at patriciawinter09@gmail.com)

Abstract Categories

Check one only:

- Reproductive Biology In Vitro Fertilization Cancer Biology Oncofertility
 Other _____

ABSTRACT TITLE: CRISPR-Cas9 Mediated Treatment of HPV16-Related Cervical Malignancy

AUTHOR: Mikaila Reyes

LEARNER OBJECTIVE: Please state the educational objective in a measurable, testable question. Then state what the participant's poster will be able to demonstrate to the viewer(s)/audience.

QUESTION: Can CRISPR-Cas9 systems be used to treat patients with HPV16-related cervical cancer?

The participant will be able to demonstrate: Using CRISPR-Cas9 systems, the *E6* oncogene that causes cervical cancer in HPV-infected cells can be mutated in order to prevent the suppression of the *p53* tumor-suppressor gene, thus triggering apoptosis and effectively serving as a therapeutic agent.

CONTENT (TOPICS): Please provide a brief statement or outline of the content/topic(s) to be presented:

Human Papillomavirus is known to cause cervical cancer in women as the *E6* oncogene disrupts the function of the *p53* tumor-suppressor gene. CRISPR (Clustered Regularly Interspaced Short Palindromic Repeat), a new genome editing tool, is being used to target and mutate the *E6* oncogene in HPV16, effectively regaining function of the body's immune system and triggering apoptosis in only the infected cells.

ABSTRACT: Abstract content should be single spaced, typed using (10-12 pt font) and between 250-300 words. The abstract content should be typed in the space below and **MUST** include the following:

High-risk Human Papillomavirus (HPV), notably HPV16, is responsible for virtually all cases of cervical cancer. When a host cell is infected, the *E6* oncoprotein proliferates and disrupts the *p53* tumor-suppressor protein, leading to unregulated cell growth. With the intent to eliminate cervical cancer in women without causing harm to healthy cells, CRISPR-Cas9 systems can be used to mutate the *E6* oncogene introduced by HPV16, essentially curing cervical malignancy. The CRISPR (Clustered Regularly Interspaced Short Palindromic Repeat)-Cas9 system is a new genome-editing tool in which a targeted segment of DNA can be cut or replaced with great specificity. When the Cas9 enzyme cuts the DNA, it essentially breaks it in half, creating a double-strand break (DSB). The error-prone NHEJ (nonhomologous end joining) repair system within the cell is then used in order to repair the DSBs. However, when the break is repaired, an insertion or deletion often occurs, causing a frameshift mutation and effectively inactivating the gene. In order to test this new genome-editing tool, four different cell lines were transfected and studied *in vitro*. Two of which were HPV16-positive cervical cancer cell lines (CaSki and SiHa) and two were HPV16-negative (C33A and HEK293). Each cell line was transfected with a plasmid encoding the Cas9 enzyme and one of three different RNA-guidance (gRNA) sequences. An annexin V-FITC (fluorescein isothiocyanate) apoptosis-detection kit demonstrated that apoptotic rates increased from an average of 5% to 40% in the HPV16-positive cells while the HPV-negative cells were unaffected. Western blot analysis indicated a reduction in *E6* activity by nearly 50% while *p53* activity nearly tripled as compared to the control. The CRISPR-Cas9 system has great potential as it allows for a less expensive and less harmful treatment for HPV-related cervical cancer. A cure for cervical cancer is only the beginning as CRISPR has a wide range of applications from targeted medicine and cancer modeling to agriculture modification and genetic screening.

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Oncofertility Saturday Academy Poster Abstract Form

NAME: Hailey Sokoloff

ADDRESS:

CITY: STATE/PROVINCE:

COUNTRY: USA

ZIP/POSTAL CODE:

PHONE:

FAX:

E-MAIL ADDRESS:

E-MAIL ASBTRACT FORM TO: Dr. Ericka Senegar-Mitchell at ebellmitchell@yahoo.com (Please cc Mrs. Patricia Winter at patriciawinter09@gmail.com)

Abstract Categories

Check one only:

Reproductive Biology

In Vitro Fertilization

Cancer Biology

Oncofertility

Other _____

ABSTRACT TITLE: The Role of Fertility Sparing Surgery in Early Stage Epithelial Ovarian Cancer

AUTHOR: Hailey Sokoloff

LEARNER OBJECTIVE: Please state the educational objective in a measurable, testable question. Then state what the participant's poster will be able to demonstrate to the viewer(s)/audience.

QUESTION: Does fertility sparing surgery impact survivorship when used to treat early stage epithelial ovarian cancer?

The participant will be able to demonstrate: This poster will examine the impact of standard treatments on patient fertility and treatment effectiveness of FSS in treating early stage epithelial ovarian cancer without affecting survivorship.

CONTENT (TOPICS): Please provide a brief statement or outline of the content/topic(s) to be presented:

Epithelial ovarian cancer can be treated in a variety of ways, such as with chemotherapy, radiation, or surgery. However, given that many of these treatments have the potential to harm fertility, methods of successfully treating ovarian cancer without completely eradicating fertility are being investigated.

As a top concern for young cancer patients, fertility preservation must be addressed. Ovarian cancer is among those cancers whose treatment threatens fertility. 21,290 women are diagnosed with ovarian cancer annually.⁵ However, through fertility sparing surgery (FSS), patients have greater ability to maintain fertility while treating cancer. The purpose of this study is to demonstrate the potential of FSS to help preserve patient fertility while effectively treating early stage epithelial ovarian cancer. To evaluate the success of various cancer treatments in preserving fertility, while curing disease, researchers compared women, less than 50 years of age, who had early stage, low-grade, non-clear cell epithelial ovarian cancer and received treatment. Patients were assigned to one of two study groups: women who underwent bilateral oophorectomy or women who received FSS. Researchers found rates of recurrence between 33% in a 109 patient study and 100% in a 3 patient study.^{3,4} Researchers also found 90% to 100% of patients resumed normal menses and pregnancy success rates between 38% and 71%.^{4,1,5} Beyond this, ultimately, researchers found that the survival rates of patients who underwent fertility sparing surgery were not significantly impacted. One study reported that the five year survival rate for patients who had undergone fertility sparing treatment was 84%, and the five year survival rate for patients treated with standard, more radical surgery was 82%.⁴ As a result, it is clear that fertility sparing surgery, in the place of other procedures with the potential to severely limit fertility, should be considered for patients with early stage epithelial ovarian cancer. By offering FSS to patients, they will have potential to better preserve fertility and have a higher quality of life. Future studies with increased numbers are necessary for future evaluation.

REFERENCES:

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4. Schlaerth, A C, Chi, D S, Poynor, E A, et al. (2009). Long-term survival after fertility-sparing surgery for epithelial ovarian cancer. *International journal of gynecological cancer*, 19(7), 1199-204.
5. Wright, J D, Shah, M, Mathew, L, et al. (2009). Fertility preservation in young women with epithelial ovarian cancer. *Cancer*, 115(18), 4118-26.

Oncofertility Saturday Academy Poster Abstract Form

NAME: Daisy Valdivieso

ADDRESS: _____

CITY: STATE/PROVINCE: _____

COUNTRY: _____

US PHONE: _____

ZIP/POSTAL CODE _____

E-MAIL ADDRESS _____

FAX _____

N/A _____

E-MAIL ASBTRACT FORM TO: Dr. Ericka Senegar-Mitchell at ebellmitchell@yahoo.com (Please cc Mrs. Patricia Winter at patriciawinter09@gmail.com)

Abstract Categories

Check one only:

Reproductive Biology In Vitro Fertilization

Cancer Biology

Oncofertility

Other _____

ABSTRACT TITLE: Ovarian Stimulation for Premenopausal Breast Cancer Patients: Aromatase Inhibitors vs. Selective Estrogen Receptor Modulators

AUTHOR: Daisy Valdivieso

LEARNER OBJECTIVE: Please state the educational objective in a measurable, testable question. Then state what the participant's poster will be able to demonstrate to the viewer(s)/audience.

QUESTION: For breast cancer patients, is it better to stimulate the ovaries using the help of aromatase inhibitors or the help of selective estrogen receptor modulators?

The participant will be able to demonstrate: This poster will explore and compare the contribution of aromatase inhibitors and the contribution of selective estrogen receptor modulators to the ovarian stimulation process. It will pinpoint two specific examples of these two groups, letrozole and tamoxifen, and determine their efficacy.

CONTENT (TOPICS): Please provide a brief statement or outline of the content/topic(s) to be presented:

Elevated estrogen levels that result from common ovarian stimulation are dangerous for breast cancer patients, thus alternatives must be used. Aromatase inhibitors prevent the reaction that turns androgen to estrogen, and selective estrogen receptor modulators bind to estrogen receptors and induce conformational changes. These mechanisms will be covered in more detail and compared to one another.

ABSTRACT: Abstract content should be single spaced, typed using (10-12 pt font) and between 250-300 words. The abstract content should be typed in the space below and **MUST** include the following:

About 15% of breast cancer patients are within ages 15-44, and knowing that after treatment they may no longer be fertile, many breast cancer patients have chosen to undergo embryo cryopreservation. However, the rise in estrogen levels that accompanies the use of common ovarian stimulants is dangerous for breast cancer patients. This study will evaluate two solutions to this problem: aromatase inhibitors and selective estrogen receptor modulators. They each work differently, and a comparison will be conducted to determine their relative efficacy and their positive and negative aspects. Representing each of these groups, one study with 60 patients compared letrozole(AI) and tamoxifen(SERM). Patients did not exceed stage three breast cancer, and were between the ages of 24 and 43. Experimental groups took 60mg/d tamoxifen, 60mg/d tamoxifen with FSH or 5mg/d letrozole with FSH. After egg retrieval and IVF, the embryos were cryopreserved. In total, the tamoxifen group resulted with 13 cycles in 12 patients, the tamoxifen-FSH group had 9 cycles in 7 patients, and the letrozole-FSH group had 11 cycles in 11 patients. Tamoxifen-FSH and Letrozole-FSH produced the highest embryo yield, but Tamoxifen-FSH resulted in very high E₂ levels. Therefore, Letrozole-FSH was found to be the best combination for successful egg retrieval while not threatening estrogen levels. Furthermore, cancer recurrence rates were about the same in the IVF group as the controls, with three in twenty-nine and three in thirty-one, respectively. From this study, letrozole-FSH, the aromatase inhibitor, was concluded to be the most effective. However, both aromatase inhibitors and selective estrogen receptor modulators are successful in keeping estrogen levels low, and because that is not the only factor they contribute to for successful ovarian stimulation for breast cancer patients, both should be considered in making a personalized decision for every patient.

REFERENCES:

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Oncofertility Saturday Academy Poster Abstract Form

NAME: Vivien Vaucher
ADDRESS: _____
CITY: STATE/PROVINCE: _____
COUNTRY: USA ZIP/POSTAL CODE _____
PHONE: _____ FAX N/A
E-MAIL ADDRESS _____

E-MAIL ASBTRACT FORM TO: Dr. Ericka Senegar-Mitchell at ebellmitchell@yahoo.com (Please cc Mrs. Patricia Winter at patriciawinter09@gmail.com)

Abstract Categories

Check one only:

- Reproductive Biology In Vitro Fertilization Cancer Biology Oncofertility
 Other _____

ABSTRACT TITLE: The Effect of Testicular Sperm Extraction (TESE) During Adolescence on the Reproductive Success of Males with Klinefelter Syndrome

AUTHOR: Vivien Vaucher

LEARNER OBJECTIVE: Please state the educational objective in a measurable, testable question. Then state what the participant's poster will be able to demonstrate to the viewer(s)/audience.

QUESTION: How does assisted reproductive technology affect the reproductive success of males with Klinefelter Syndrome?

The participant will be able to demonstrate: This poster will be able to identify how utilizing cryopreserved testicular tissue affects reproductive success of males with Klinefelter Syndrome.

CONTENT (TOPICS): Please provide a brief statement or outline of the content/topic(s) to be presented:

The content of the poster will explain Klinefelter Syndrome and the effect of its symptoms on fertility; testicular tissue cryopreservation, one of the more viable methods that has been tested for fertility preservation; and how reproductive success is affected by this method in the males with Klinefelter Syndrome.

ABSTRACT: Abstract content should be single spaced, typed using (10-12 pt font) and between 250-300 words. The abstract content should be typed in the space below and **MUST** include the following:
Klinefelter Syndrome (KS) is a disorder that occurs when a male has any number of additional X chromosomes to the X chromosome in the XY set that determines his sex. This syndrome is one of the most common sex chromosome disorders, affecting an estimated one in 500-1,000 males at birth, however, many cases go undiagnosed because the symptoms often present mildly. Most KS males face infertility and a deficit in testosterone, and if diagnosed, patients can be put on testosterone treatments to regulate hormone levels in the body for the development of secondary sex characteristics. Males with KS often seek assisted reproductive technology, a common method being testicular sperm extraction (TESE), where a biopsy is performed to retrieve testicular tissue, and it is then cryopreserved for future sperm extraction. Due to the knowledge that the success of TESE decreases as testosterone increases, it is ideal for this procedure to be performed before the onset of puberty when testosterone does not have any effect. This particular study was conducted on eight adolescent males with Klinefelter Syndrome who served as an experimental group to examine the success of TESE on KS males. Following an analysis of a semen sample to detect azospermia, these males were given the option to have testicular tissue cryopreserved. After examination of the testicular tissue extracted, one patient was found to have viable spermatozoa in one testis, and another was found to have a low, but present amount of germ cells in one testis. Seven of the males were shown to have azospermia. TESE was used as the preservation method due to it having proven to allow for successful spermatogenesis of the sperm retrieved, and additionally, egg fertilization through ICSI in vitro fertilization procedure. Thus far, TESE has proven effective in the fertilization of eggs via in vitro fertilization, but it has not yet been tested enough to determine statistics regarding the prevalence of full reproductive success. However, the results of testicular tissue biopsies performed on adolescent KS males show potential for the future reproductive success of the patients.

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Oncofertility Saturday Academy Poster Abstract Form

NAME: Paulina Wells
ADDRESS: _____
CITY: STATE/PROVINCE: _____
COUNTRY: USA ZIP/POSTAL CODE _____
PHONE: _____ FAX none
E-MAIL ADDRESS _____

E-MAIL ASBTRACT FORM TO: Dr. Ericka Senegar-Mitchell at ebellmitchell@yahoo.com (Please cc Mrs. Patricia Winter at patriciawinter09@gmail.com)

Abstract Categories

Check one only:

- Reproductive Biology In Vitro Fertilization Cancer Biology Oncofertility
 Other:

ABSTRACT TITLE: **The Enhancement of Cancer Immunotherapy with Gold Nanoparticles**

AUTHOR: **Paulina Wells**

LEARNER OBJECTIVE: Please state the educational objective in a measurable, testable question. Then state what the participant's poster will be able to demonstrate to the viewer(s)/audience.

QUESTION: How does the use of gold nanoparticles enhance cancer immunotherapy in suppressing tumor growth?

The participant will be able to demonstrate: The intent of this poster is to investigate how gold nanoparticles (AuNPs) can improve the delivery of cancer vaccines to malignant tumors and inhibiting tumor growth.

CONTENT (TOPICS): Please provide a brief statement or outline of the content/topic(s) to be presented:

Topics include a brief explanation of immunotherapy and cancer vaccines, the mechanics of gold nanoparticles, and the positive role and impact gold nanoparticles have in cancer vaccines and immunotherapy.

ABSTRACT: Abstract content should be single spaced, typed using (10-12 pt font) and between 250-300 words. The abstract content should be typed in the space below and **MUST** include the following:

Cancer immunotherapy is a cancer treatment that utilizes adjuvants and antigens to stimulate the immune system to detect and eradicate cancer cells. By utilizing immunotherapy, tumor growth can be suppressed and may facilitate other cancer therapies, thus reducing toxicity, decreasing time of cancer eradication, and increasing survival rates. Certain cancer vaccines have been developed to inhibit malignant tumor growth, but these vaccines have a weak immune-stimulating capacity of creating tumor antigen-specific responses to stop the spread of cancer. However, according to various studies, the emergence of gold nanoparticles (AuNPs) has presented advantages to cancer vaccines.¹In three studies, researchers investigated the efficacy of AuNPs conjugated with antigens and/or adjuvants in inhibiting tumor growth by injecting tumor bearing mice with either this mixture, a free antigen/adjuvant mixture, or a saline solution (control). One study investigated the efficiency of AuNPs conjugated with EDB (tumor-associated self-antigen) and OVA₂₅₇₋₂₆₉ (ovalbumin peptide antigen) on the inhibition of breast cancer tumor growth, while another investigation focused on the suppression of B16-OVA tumor through the combination of AuNPs with OVA and CpG (adjuvant).^{2, 3} A third investigation researched the suppression of RFP-expressing tumors with AuNPs conjugated with CpG and RFP (model antigen).⁵ Evidently, the results were similar. The AuNP/EDB-OVA₂₅₇₋₂₆₉ (~ 480 mm³) repressed tumor growth compared to the free antigen (~900 mm³) and the control (~1100 mm³).² Similarly, AuNP/OVA (~5-7 mm²) and AuNP/OVA+AuNP/CpG (~10 mm²) dramatically inhibited tumor growth compared to OVA (~85 mm²) and the control (~110 mm²).¹ Compared to RFP (~900 mm³) and the control (~850 mm³), CpG/RFP/AuNP (~200 mm³) significantly suppressed the tumor.⁵ It was concluded that AuNPs helped the delivery of antigens and adjuvants to the targeted site, thus having an enhanced therapeutic effect. By utilizing AuNPs in combination therapy with cancer vaccines, cancer can be more efficiently eradicated.

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