WEBVTT

1 00:00:00.000 --> 00:00:10.009 Support for Yale Cancer Answers comes from AstraZeneca, providing important treatment options for women living with advanced ovarian cancer.

2 00:00:10.009 --> 00:00:13.609 Learn more at astrazeneca-us.com.

3 00:00:13.609 --> 00:00:18.173 Welcome to Yale Cancer Answers with doctors Anees Chagpar and Steven Gore,

4 00:00:18.173 --> 00:00:28.102 Yale Cancer Answers features the latest information on cancer care by welcoming oncologists and specialists who are on the forefront of the battle to fight cancer. This week

5 00:00:28.102 --> 00:00:32.152 it's a conversation about fertility preservation with Doctor Pasquale Patrizio.

6 00:00:32.152 --> 00:00:41.622 Dr. Patrizio is Professor of Obstetrics Gynecology and Reproductive Sciences at Yale School of Medicine and Director of the Yale Fertility Center

7 00:00:41.622 --> 00:00:52.070 and fertility preservation program.

8 00:00:52.070 --> 00:00:55.972 Thanks for joining me tonight, before we get started

9 00:00:55.972 --> 00:00:58.551 can you recite that title by yourself?

10 00:00:58.551 --> 00:01:04.108 That is the longest title I think I've ever interviewed anybody with.

11 00:01:04.108 --> 00:01:06.754 Thank you and good evening to everyone.

12 00:01:06.754 --> 00:01:08.474 Yes. It's a mouthful.

13 00:01:08.474 --> 00:01:14.558 But simply said, I'm in charge of patients that have a problem in achieving a pregnancy.

14 00:01:14.558 --> 00:01:16.676 So that's the fertility center.

15 00:01:16.676 --> 00:01:20.975 And in addition, I also specialize in fertility preservation,

16 00:01:20.975 --> 00:01:26.834 which is a branch of our subspecialty of Reproductive Medicine,

17 00:01:26.834 --> 00:01:35.870 which is specifically aimed at patients that have been hit by cancer or any other medical condition,

18 00:01:35.870 --> 00:01:41.810 or they want to preserve their fertility for future at a future time.

19 00:01:41.810 --> 00:01:45.316 That's fascinating, so did you come into the field,

20 00:01:45.316 --> 00:01:53.477 then through a sort of traditional obstetrics and gynecology training or an endocrinology training or a cancer training?

21 00:01:53.477 --> 00:01:57.454 Yes, in order to be specializing in reproductive medicine,

22 00:01:57.454 --> 00:02:03.793 you first do a residency in obstetrics and gynecology and then you do additional training,

23 00:02:03.793 --> 00:02:07.503 specifically in reproductive medicine and infertility.

24 00:02:07.503 --> 00:02:12.021 And in addition, I also had extra training in two other things.

25 00:02:12.021 --> 00:02:16.569 I specialized in andrology, which is the study of a male fertility.

26 00:02:16.569 --> 00:02:19.318 And I also have a master in bioethics,

27 00:02:19.318 --> 00:02:22.841 so that's my full circle of titles.

28 00:02:22.841 --> 00:02:26.364 The ethics thing might be a whole different show

29 00:02:26.364 --> 00:02:30.379 I'm afraid, that would be very fascinating to talk about,

30 00:02:30.379 --> 00:02:38.412 but I think our listeners are probably interested in the fertility preservation mostly and I have to say,

31 00:02:38.412 --> 00:02:43.062 of course, with my patients who mostly have leukemia or lymphoma,

32 00:02:43.062 --> 00:02:47.289 it's often a medical emergency and many of them are young and

33 00:02:47.289 --> 00:02:49.591 this question of you know,

34 00:02:49.591 --> 00:02:52.657 should they do fertility preservation?

35 00:02:52.657 --> 00:02:55.801 Is it feasable how much time do we have?

36 00:02:55.801 --> 00:03:08.377 These are really pressing questions for us in dealing with our patients and also very important questions and the short answer is yes they should all be at least

37 00:03:08.377 --> 00:03:12.442 introduced to the concept of fertility preservation.

38 00:03:12.442 --> 00:03:15.969 When you say young, if they're post pubertal,

39 00:03:15.969 --> 00:03:21.258 there are options that we will discuss in detail in a little bit,

40 00:03:21.258 --> 00:03:23.384 but if they are a prepubertal,

41 00:03:23.384 --> 00:03:29.008 there are also now options for both men and women that they can consider as well.

42 00:03:29.008 --> 00:03:32.985 It is definitely a discussion that has to be entertained,

43 00:03:32.985 --> 00:03:37.236 because if it's not entertained, later on after chemotherapy,

44 00:03:37.236 --> 00:03:42.037 radiotherapy, or any other toxic insult to the reproductive function,

45 00:03:42.037 --> 00:03:44.367 then there is going to be regret,

46 00:03:44.367 --> 00:03:48.620 and there is really nothing wrong in having a discussion with a

47 00:03:48.620 --> 00:04:01.133 reproductive specialist and at the end of the discussion all the options are presented to the patient and if they are young, together with their parents, and they come with

48 00:04:01.133 --> 00:04:05.670 the issues that can be good for their own specific case.

49 00:04:05.670 --> 00:04:09.475 Yeah, well, of course my practice is mostly adults,

50 00:04:09.475 --> 00:04:12.330 and that's what I'm most familiar with.

51 00:04:12.330 --> 00:04:16.211 And we have patients,

52 00:04:16.211 --> 00:04:22.310 of course we have some patients in their 30s who have five kids and they've had enough.

53 00:04:22.310 --> 00:04:29.658 But and then we have the 40 year old that has not yet had a child who are hoping to so it really runs the gamut.

54 00:04:29.658 --> 00:04:33.956 And you know, I was taught and maybe correct me if I'm wrong,

55 00:04:33.956 --> 00:04:39.778 I was taught when I was training in leukemia that for the most part when young men,

56 00:04:39.778 --> 00:04:44.699 young adult men present with either an aggressive lymphoma or leukemia,

57 00:04:44.699 --> 00:04:50.242 often their sperm count is diminished or their quality of sperm is not very good,

58 00:04:50.242 --> 00:04:54.771 and at the previous place I was and I'm not sure what the

59 00:04:54.771 --> 00:04:57.610 rationalization was,

60 00:04:57.610 --> 00:05:05.923 but they were not routinely order offered semen banking because it was thought well it's not going to be effective anyway.

61 00:05:05.923 --> 00:05:07.612 Is that old news?

62 00:05:07.612 --> 00:05:14.709 Definitely old news. You are absolutely correct when you say that men with leukemia and lymphoma,

63 00:05:14.709 --> 00:05:21.091 during their time that they've been diagnosed

64 00:05:21.091 --> 00:05:25.346 they do have a decrease in the sperm count,

65 00:05:25.346 --> 00:05:38.565 but, what is really important is that today's technologies in assisted reproduction are so precise and so effective that even a man with an extremely low sperm count low

66 00:05:38.565 --> 00:05:45.149 sperm motility, meaning very few swimming that sample still has to be frozen.

67 00:05:45.149 --> 00:05:54.261 Because we can use a single sperm at the time in an egg and allow virtualization reproduction in that particular case.

68 00:05:54.261 --> 00:06:01.228 So always always refer and save any sperm that is available in the ejaculate before chemo.

69 00:06:01.228 --> 00:06:04.290 And of course,

70 00:06:04.290 --> 00:06:09.189 with many kinds of chemotherapy that we offer younger people,

71 00:06:09.189 --> 00:06:12.482 they will in fact recover their fertility,

72 00:06:12.482 --> 00:06:15.697 right? You are also correct here in that,

73 00:06:15.697 --> 00:06:18.529 particularly with the changes in the

74 00:06:18.529 --> 00:06:32.372 chemotherapy protocols that are so called the less aggressive towards the testicle are there many cases where the patient recovers and therefore the reproductive function is

75 00:06:32.372 --> 00:06:35.156 completely saved by the chemotherapy?

76 00:06:35.156 --> 00:06:41.088 It's impossible to predict who is going to recover and who is not,

77 00:06:41.088 --> 00:06:45.336 and in particular for men to have a sample cryopreserved it is

78 00:06:45.336 --> 00:06:47.533 pretty easy. It's easy to do,

79 00:06:47.533 --> 00:06:50.317 it's much more difficult for a woman.

80 00:06:50.317 --> 00:06:53.540 Of course, we won't describe it on the radio.

81 00:06:53.540 --> 00:06:56.507 That's a good idea.

82 00:06:56.507 --> 00:07:01.125 And therefore it's always good to have at least a sample,

83 00:07:01.125 --> 00:07:04.836 which can then be split into multiple.

84 00:07:04.836 --> 00:07:07.887 But at least a sample cryopreserved.

85 00:07:07.887 --> 00:07:10.444 And if the gentleman recovers,

86 00:07:10.444 --> 00:07:19.266 great, so that sample can be then disposed of because it costs money every year that the sample is stored,

87 00:07:19.266 --> 00:07:26.829 right? It does, but it depends on how these expenses are considered.

88 00:07:26.829 --> 00:07:35.538 If you have to pay $500 or $600 a year to keep a sample frozen and they can be kept frozen for many,

89 00:07:35.538 --> 00:07:38.814 many years, I mean 15 years 20 years,

90 00:07:38.814 --> 00:07:41.401 that's not a problem anymore,

91 00:07:41.401 --> 00:07:43.802 but the moment that you need to use it,

92 00:07:43.802 --> 00:07:46.302 you don't need to keep it frozen forever.

93 00:07:46.302 --> 00:07:50.408 And if you don't need to use it

94 00:07:50.408 --> 00:07:54.096 because your sperm has returned in your ejaculate

95 00:07:54.096 --> 00:07:55.286 you can throw it out.

96 00:07:55.286 --> 00:08:00.166 Or if the eggs were frozen and you have recovered your ovarian function.

97 00:08:00.166 --> 00:08:03.737 For women, they can also dispose of the eggs and in general,

98 00:08:03.737 --> 00:08:06.653 in my experience, maybe this is outdated,

99 00:08:06.653 --> 00:08:08.735 but insurance tends not to cover this,

100 00:08:08.735 --> 00:08:11.829 is that right? This is also an outdated concept and

101 00:08:11.829 --> 00:08:22.117 I'm glad you ask these questions because we're very proud here in Connecticut to say that we have been the first state in the United States to

102 00:08:22.117 --> 00:08:29.865 have the service of fertility preservation for cancer or any other medical condition is covered by insurance.

103 00:08:29.865 --> 00:08:32.815 There is a mandate in Connecticut.

104 00:08:32.815 --> 00:08:34.666 I've worked here for six years and

105 00:08:34.666 --> 00:08:36.312 I didn't know that.

106 00:08:36.312 --> 00:08:38.506 It is true that is now 2 years.

107 00:08:38.506 --> 00:08:41.113 that bill was signed and we are very,

108 00:08:41.113 --> 00:08:44.234 very proud that.

109 00:08:44.234 --> 00:08:48.126 And there are another seven states now that

110 00:08:48.126 --> 00:08:57.782 are preparing to approve insurance mandate for fertility preservation in cancer conditions in.

111 00:08:57.782 --> 00:09:00.818 Is that true for the public insurance?

112 00:09:00.818 --> 00:09:03.700 Like Husky as well for the Medicaid?

113 00:09:03.700 --> 00:09:08.837 Well, that's of course it's a little bit different for the Husky.

114 00:09:08.837 --> 00:09:11.899 Those are probably less covered.

115 00:09:11.899 --> 00:09:13.361 I want to say though,

116 00:09:13.361 --> 00:09:26.057 that there are programs that we provide and pharmaceutical can provide where medications are given in a compassionate fashion and there are discounts for patients that cannot really afford it

117 00:09:26.057 --> 00:09:28.916 because of their own specific insurance.

118 00:09:28.916 --> 00:09:40.682 They are not fully covered and that's really important and ironic really because of course the Husky patients and other subsidized patients are the ones who can least afford the

119 00:09:40.682 --> 00:09:44.100 out of pocket compared to the well insured

120 00:09:44.100 --> 00:09:46.708 professional class,

122 00:09:50.187 --> 00:09:52.480 many of whom have, you know,

123 00:09:52.480 --> 00:09:56.433 fungible monies.

124 00:09:56.433 --> 00:10:00.624 And it's very sad to be facing this type of reality.

125 00:10:00.624 --> 00:10:11.297 However, the fact that there are pharmacies that are offering medications for free and also there are very nice opportunities here.

126 00:10:11.297 --> 00:10:13.826 At Smilow we have a particular,

127 00:10:13.826 --> 00:10:16.990 very, very generous station that has

128 00:10:16.990 --> 00:10:24.711 put together, a fund, particularly for patients that cannot afford, specifically for breast cancer,

129 00:10:24.711 --> 00:10:27.432 and this is a very thankful patient.

130 00:10:27.432 --> 00:10:31.034 It's helping others with breast cancer.

131 00:10:31.034 --> 00:10:33.975 So let's take the case of male patient.

132 00:10:33.975 --> 00:10:36.549 And let's say it's acute leukemia,

133 00:10:36.549 --> 00:10:38.682 which is often an emergency.

134 00:10:38.682 --> 00:10:42.211 And let's say the guy is coming in on a Saturday

135 00:10:42.211 --> 00:10:45.447 'cause that's what happens or Friday night,

136 00:10:45.447 --> 00:10:48.241 how fast can we mobilize this really?

137 00:10:48.241 --> 00:10:50.080 How much time do we have

138 00:10:50.080 --> 00:10:55.663 for him to give his sample and get it in the freezer before we start chemotherapy.

139 00:10:55.663 --> 00:11:01.515 Now we are open as a service here seven days a week on.

141 00:11:04.879 --> 00:11:08.445 So therefore, if we get a phone call,

142 00:11:08.445 --> 00:11:10.260 we have a 24 hour service.

143 00:11:10.260 --> 00:11:15.441 We have a phone call that the gentleman has to freeze sperm within 24 hours.

144 00:11:15.441 --> 00:11:16.854 So this can be done.

145 00:11:16.854 --> 00:11:18.669 Well, that's great.

146 00:11:18.669 --> 00:11:25.238 It's a terrific service. Obviously it's more complicated for women because they can't just,

147 00:11:25.238 --> 00:11:29.961 you know, sit there and fantasize and produce their eggs right?

148 00:11:29.961 --> 00:11:33.504 I mean, it's a much more complicated procedure,

149 00:11:33.504 --> 00:11:47.746 so what's involved in how successful is oversight preservation or ovarian preservation for women that need to preserve fertility because of cancer and again before they undergo chemotherapy,

150 00:11:47.746 --> 00:11:50.330 radiotherapy or any other surgical

151 00:11:50.330 --> 00:11:54.625 treatment that may impact their future reproductive options.

152 00:11:54.625 --> 00:12:00.285 The time that we need in order to do a freezing becomes extremely short.

153 00:12:00.285 --> 00:12:04.035 Two weeks was needed in the old days,

154 00:12:04.035 --> 00:12:06.423 meaning four or five years ago.

155 00:12:06.423 --> 00:12:09.150 We need a minimum of four to six weeks.

156 00:12:09.150 --> 00:12:18.902 That's what I remember and the reason why is the short end is because we learned that we can stimulate ovaries at any part of the menstural cycle.

157 00:12:18.902 --> 00:12:22.500 So no matter where they are in their cycle

158 00:12:22.500 --> 00:12:29.630 we can start the stimulation of the ovaries. You used to have to wait until a period so you knew how to time it right.

159 00:12:29.630 --> 00:12:31.105 But no more.

160 00:12:31.105 --> 00:12:37.192 We can stimulate the ovaries at any part and in two weeks we can collect eggs.

161 00:12:37.192 --> 00:12:43.524 It is a process, it's two weeks during which the patient has to be seen three or four times in our office,

162 00:12:43.524 --> 00:12:53.667 and then they need to take particular medications to stimulate the ovaries in producing more than just one egg and then the collection is also done in the office

163 00:12:53.667 --> 00:13:01.839 under a heavy sedation and in 15 minutes the eggs are extracted and whatever it is mature is going to be frozen.

164 00:13:01.839 --> 00:13:04.830 And can I ask how you do the egg harvest?

165 00:13:04.830 --> 00:13:11.524 Is that through the vagina or through the abdomen with a laparoscope or no it's not surgical.

166 00:13:11.524 --> 00:13:15.155 It's a mini surgery that is through the vagina.

167 00:13:15.155 --> 00:13:17.363 There is a vaginal probe ultrasound

168 00:13:17.363 --> 00:13:24.840 that is fitted with the needle on the end and we give a local anesthesia plus heavy sedation and

169 00:13:24.840 --> 00:13:28.788 it takes about 15 minutes to harvest through the vagina,

170 00:13:28.788 --> 00:13:30.061 so there is no cut.

171 00:13:30.061 --> 00:13:34.773 There is no no bruise and it's a pretty straightforward process to do.

172 00:13:34.773 --> 00:13:37.765 Well that's a very fascinating process,

173 00:13:37.765 --> 00:13:40.759 and we're going to want to talk more about it,

174 00:13:40.759 --> 00:13:45.299 but right now we need to take a short break for medical minute.

175 00:13:45.299 --> 00:13:48.720 Support for Yale Cancer Answers comes from AstraZeneca.

176 00:13:48.720 --> 00:13:58.379 The beyond pink campaign aims to empower metastatic breast cancer patients and their loved ones to learn more about their diagnosis and make informed decisions.

177 00:13:58.379 --> 00:14:00.480 Learn more at life beyond pink com.

178 00:14:00.480 --> 00:14:02.549

179 00:14:02.549 --> 00:14:05.524 This is a medical minute about lung cancer.

180 00:14:05.524 --> 00:14:17.553 More than 85% of lung cancer diagnosis are related to smoking and quitting even after decades of use can significantly reduce your risk of developing lung cancer for lung cancer

181 00:14:17.553 --> 00:14:23.231 patients. Clinical trials are currently underway to test innovative new treatments.

182 00:14:23.231 --> 00:14:35.465 Advances are being made by utilizing targeted therapies and immunotherapy's and the BATTLE II trial aims to learn if a drug or combination of drugs based on personal biomarkers can help

183 00:14:35.465 --> 00:14:37.559 to control non small cell lung.

184 00:14:37.559 --> 00:14:41.883 More information is available at yalecancercenter.org.

185 00:14:41.883 --> 00:14:46.389 You're listening to Connecticut public radio.

186 00:14:46.389 --> 00:14:49.051 Welcome back to Yale Cancer Answers.

187 00:14:49.051 --> 00:14:51.136 This is doctor Steven Gore.

188 00:14:51.136 --> 00:14:55.019 I'm joined tonight by my guest doctor Pasquale Patrizio.

189 00:14:55.019 --> 00:14:58.903 We were discussing fertility preservation and cancer.

190 00:14:58.903 --> 00:15:10.626 Pasquale, you were telling me before the break that it takes about 2 weeks to stimulate egg production sufficient to harvest in kind of a

191 00:15:10.626 --> 00:15:14.942 needle aspiration it sounds like to get these eggs.

192 00:15:14.942 --> 00:15:17.100 What happens to the eggs then?

193 00:15:17.100 --> 00:15:19.134 Once the eggs are harvested,

194 00:15:19.134 --> 00:15:22.923 they are assessed in the Embryology lab for maturity.

195 00:15:22.923 --> 00:15:27.903 We only freeze eggs that are considered mature and generally about 80%

196 00:15:27.903 --> 00:15:30.149 of the eggs that are harvested

197 00:15:30.149 --> 00:15:42.285 are considered mature, and then they're going to be frozen and the process of a freezing is also important to let the audience know that has improved dramatically over

198 00:15:42.285 --> 00:15:44.460 the last seven or eight years,

199 00:15:44.460 --> 00:15:47.827 with the technique that is called vitrification,

200 00:15:47.827 --> 00:16:00.982 or very fast freezing and this has been accompanied by an extremely high success in terms of survival rate when the eggs are needed to used.

201 00:16:00.982 --> 00:16:05.548 And how many on average eggs are attained?

202 00:16:05.548 --> 00:16:10.028 It depends on the age of the patient,

203 00:16:10.028 --> 00:16:14.677 the younger, the more we get and over the age of 37 we get fewer,

204 00:16:14.677 --> 00:16:18.820 but an average women that is younger than 37

205 00:16:18.820 --> 00:16:25.302 after one cycle day we are able to freeze 10 to 12 eggs. In women that are older than 37.

206 00:16:25.302 --> 00:16:35.394 in general, we can get 6 eggs as an average.

207 00:16:35.394 --> 00:16:38.134 Does this treatment in any way impact a patient's future ability to produce eggs if she recovers fertility after chemotherapy?

208 00:16:38.134 --> 00:16:47.090 This is an excellent question because we are asked all the time whether there is an impact on the future chance over reproduction.

209 00:16:47.090 --> 00:16:49.720 If we harvest eggs, the answer is no.

210 00:16:49.720 --> 00:16:57.657 The eggs that are harvested in a particular cycle are eggs that would have been lost anyway,

211 00:16:57.657 --> 00:17:02.797 so there is no shortening or anticipation of the time to menopause.

212 00:17:02.797 --> 00:17:12.776 Menopause is going to be decided according to what type of chemotherapy and treatment a patient is going to receive,

213 00:17:12.776 --> 00:17:19.730 but it is certainly not the egg harvesting that is going to create damage or future risk.

214 00:17:19.730 --> 00:17:24.022 For fertility, it's important to say.

215 00:17:24.022 --> 00:17:29.869 You said the success rate of the freezing and thawing has improved.

216 00:17:29.869 --> 00:17:37.938 So what is the likelihood of being able to create a viable embryo when these eggs are thawed in the future?

217 00:17:37.938 --> 00:17:47.337 Now it is also important to stress that the great majority of eggs that have been frozen in a cancer patient are still frozen,

218 00:17:47.337 --> 00:17:53.630 and if we look also at the worldwide experience on how many eggs have been utilized,

220 00:17:58.076 --> 00:18:00.968 There are not too many cases reported,

221 00:18:00.968 --> 00:18:05.787 but in general based on the data of the literature,

222 00:18:05.787 --> 00:18:12.757 we can say that the survival rate of these eggs that have been vitrified is around 80 to 85%.

223 00:18:12.757 --> 00:18:15.352 So that's very good. They survive.

224 00:18:15.352 --> 00:18:18.836 They have a very high chance of fertilization.

225 00:18:18.836 --> 00:18:25.953 About 70%. They can create embryos and once you create at least two good quality embryos,

226 00:18:25.953 --> 00:18:28.029 the chance of having a baby

227 00:18:28.029 --> 00:18:32.258 is about 35%, so it's not a slam dunk success,

228 00:18:32.258 --> 00:18:34.490 but if it's only 35%

229 00:18:34.490 --> 00:18:37.682 depending how many eggs you start with,

230 00:18:37.682 --> 00:18:40.394 for having two embryos.

231 00:18:40.394 --> 00:18:47.573 If you have four embryos that means you have a couple of opportunities for pregnancy,

232 00:18:47.573 --> 00:18:53.237 then cumulatively you are looking at around 50 to 60%.

233 00:18:53.237 --> 00:18:58.900 Of course we would always like to have 100%.

234 00:18:58.900 --> 00:19:02.262 But if

235 00:19:02.262 --> 00:19:06.451 unfortunately there was no time to do anything or no desire to do anything

236 00:19:06.451 --> 00:19:08.050 and then you have a regrets,

237 00:19:08.050 --> 00:19:09.374 then you have 0% right?

238 00:19:09.374 --> 00:19:17.972 What about the patient? Let's take the female version of the patient that I was describing who comes on a Saturday and really can't wait more than a day or two

239 00:19:17.972 --> 00:19:19.461 so she's not going to have

240 00:19:19.461 --> 00:19:21.500 14 days.

241 00:19:21.500 --> 00:19:24.201 We're going to have to treat her into remission.

242 00:19:24.201 --> 00:19:28.115 Is it worthwhile to once she's in remission and now she has some time?

243 00:19:28.115 --> 00:19:30.039 Can you try to harvest eggs then?

244 00:19:30.039 --> 00:19:38.657 This is a question that gives me the opportunity to elaborate a little bit more on a specific case that you are thinking of,

245 00:19:38.657 --> 00:19:40.828 which is a leukemia in general.

246 00:19:40.828 --> 00:19:44.765 They're very sick patients. They have high fever.

247 00:19:44.765 --> 00:19:47.140 They don't have

248 00:19:47.140 --> 00:19:51.617 the two weeks of time to wait for having the ovary stimulated.

249 00:19:51.617 --> 00:20:00.099 So in those cases unfortunately the only option we have at the moment is to take care of their health first and

250 00:20:00.099 --> 00:20:05.155 use a particular medication that is considered to be protective on the ovary.

251 00:20:05.155 --> 00:20:12.480 On the ovarian function which is a monthly injection during the time that the patient will undergo chemotherapy,

252 00:20:12.480 --> 00:20:14.748 but then after a couple of cycles,

253 00:20:14.748 --> 00:20:17.145 two or three cycles of chemotherapy,

254 00:20:17.145 --> 00:20:23.239 and if we have an opportunity to wait for about 6 eight weeks before restarting chemotherapy,

255 00:20:23.239 --> 00:20:26.998 we need 8 weeks before we can then stimulate the ovaries.

257 00:20:31.730 --> 00:20:38.659 And I cannot stimulate an ovary to collect eggs while the patient is doing chemotherapy.

258 00:20:38.659 --> 00:20:41.990 Because chemotherapy is extremely toxic for eggs,

259 00:20:41.990 --> 00:20:44.455 and in those cases eggs are growing.

260 00:20:44.455 --> 00:20:49.119 Therefore they can be made not viable by the use of the chemotherapy.

261 00:20:49.119 --> 00:20:51.919 So you need to have a little bit of time,

262 00:20:51.919 --> 00:21:00.181 but I want to spend also another moment to explain that particularly for leukemia and exclusively for leukemia,

263 00:21:00.181 --> 00:21:01.779 I should say in this case,

264 00:21:01.779 --> 00:21:10.755 in the old days there was always a concern that you cannot offer another option which is called ovarian tissue freezing,

265 00:21:10.755 --> 00:21:21.662 which means you take a piece of ovarian tissue and then you freeze it and we were not offering it because leukemia is one over those cancer that also spreads

266 00:21:21.662 --> 00:21:32.569 to the ovaries. They don't want to freeze a piece of ovary and then in the future re transplant and risk returning the cancer because the cancer was

267 00:21:32.569 --> 00:21:35.252 in the already frozen portion

268 00:21:35.252 --> 00:21:39.886 but today we know that after a couple of cycles of chemotherapy,

269 00:21:39.886 --> 00:21:45.069 now I can freeze ovarian tissue if there is no time to do ovarian stimulation.

270 00:21:45.069 --> 00:21:48.117 Because after a couple of cycles of chemotherapy,

271 00:21:48.117 --> 00:21:52.751 the ovaries have been purged of those leukemic cells that were infiltrating,

272 00:21:52.751 --> 00:21:55.130 and now you can freeze ovarian tissue,

273 00:21:55.130 --> 00:21:58.788 and even though the ovaries are still asleep from the drug,

274 00:21:58.788 --> 00:22:01.349 you can get them from the protected drug.

275 00:22:01.349 --> 00:22:03.240 They're still going to recover?

276 00:22:03.240 --> 00:22:10.339 Correct, and three babies have been born and reported 2 from Israel and one from Saint Louis.

277 00:22:10.339 --> 00:22:14.446 Wow, so you take out the whole ovary or a slice?

278 00:22:14.446 --> 00:22:18.204 In some cases you can take one ovary,

279 00:22:18.204 --> 00:22:22.103 leave the other one in place because you never know.

281 00:22:25.584 --> 00:22:33.935 So if it does not recover then you can use the existing left behind ovary as a scaffold on which you can re graft.

282 00:22:33.935 --> 00:22:39.507 You can replace that ovarian tissue that had frozen from the ovary that you have removed.

283 00:22:39.507 --> 00:22:49.833 Well, that's fascinating. So you take the frozen ovarian tissue and you graft it onto the existing ovary that is not functioning anymore and then that will start to function

284 00:22:49.833 --> 00:22:51.683 again. It takes root, correct?

285 00:22:51.683 --> 00:22:55.384 And does it usually? I mean probably doesn't happen so often,

286 00:22:55.384 --> 00:22:59.682 but does it usually recover and service and function?

287 00:22:59.682 --> 00:23:06.170 So there are a total of close to 200 babies that have been born by doing exactly what we just described.

288 00:23:06.170 --> 00:23:13.569 And in the United States there are a total of 17 children born by doing a re transplant or grafting ovary on the

289 00:23:13.569 --> 00:23:18.678 existing ovary that is not functioning anymore or if there is no ovary at all

290 00:23:18.678 --> 00:23:29.025 those pieces of ovarian tissue that were frozen can be grafted in the pelvic sidewall on the side where it was originally present.

291 00:23:29.025 --> 00:23:37.079 That's so cool and the patient regains menstrual cycles and things like that after four to five months?

292 00:23:37.079 --> 00:23:42.747 Yes, because that's the minimum time you need to wait before the ovarian function returns,

293 00:23:42.747 --> 00:23:45.518 but that's normal also in normal women,

294 00:23:45.518 --> 00:23:48.414 it takes about four months to produce an egg,

295 00:23:48.414 --> 00:23:54.773 so they start cycling and therefore the ovarian tissue is making the normal hormones as well.

296 00:23:54.773 --> 00:23:57.166 The ovary has to make hormones.

297 00:23:57.166 --> 00:23:59.685 Or do you give them androgynous hormones?

298 00:23:59.685 --> 00:24:06.298 Now most of the time they produce their own hormone and in fact they are no longer in menopause

299 00:24:06.298 --> 00:24:10.277 from chemotherapy, they resume their endocrine function as well,

300 00:24:10.277 --> 00:24:12.369 which means production of estrogen,

301 00:24:12.369 --> 00:24:15.160 which is one of the main functions of the ovary,

302 00:24:15.160 --> 00:24:18.998 and occasionally there are reports where you stimulate the ovary,

303 00:24:18.998 --> 00:24:24.636 ovarian tissue that you re transplanted just to see if you can get two instead of one.

304 00:24:24.636 --> 00:24:26.788 Maybe you can get two or three eggs,

305 00:24:26.788 --> 00:24:33.299 but it's remarkable that many of those babies that have been reported they have been achieved by natural cycles,

306 00:24:33.299 --> 00:24:41.769 and no use of an assistive technique. And where you don't have a graft but you put them

307 00:24:41.769 --> 00:24:47.633 on the side of the pelvis, do the Fallopian tubes find those?

308 00:24:47.633 --> 00:24:52.105 No, in this case, you need to harvest and then you do in vitro fertilization.

309 00:24:52.105 --> 00:24:54.643 I was going to say that's really amazing.

310 00:24:54.643 --> 00:24:58.632 If the fallopian tubes can find the tissue that would be so cool.

311 00:24:58.632 --> 00:25:03.709 I mean, that's so interesting and I'm wondering, and I'm going to show my ignorance,

312 00:25:03.709 --> 00:25:07.576 this is really out of my comfort zone scientifically, but

313 00:25:07.576 --> 00:25:13.509 why would it not be a good idea to do this kind of ovary in harvest on most pre menopausal women

314 00:25:13.509 --> 00:25:15.469 who are being treated for cancer?

315 00:25:15.469 --> 00:25:21.000 Breast cancer patients or something where you don't want estrogen around,

316 00:25:21.000 --> 00:25:25.380 of course, but people are going to lose their ovarian function predictably,

317 00:25:25.380 --> 00:25:32.986 and then they're going to have to suffer the consequences of early menopause and bone health and cardiac health and all that stuff.

318 00:25:32.986 --> 00:25:34.252 Why don't we do this?

319 00:25:34.252 --> 00:25:38.633 For all of those women and replant them and let them get their tissue back?

320 00:25:38.633 --> 00:25:43.702 Well again, it's not a stupid question or ignorant question it is a fantastic question,

321 00:25:43.702 --> 00:25:45.859 and in fact we are working on that.

322 00:25:45.859 --> 00:25:52.940 I just came back from a meeting where I was talking about exactly what you just asked me,

323 00:25:52.940 --> 00:26:06.471 and essentially this is a very important future opportunity for not only women with cancer but any other medical condition that can impact early menopause,

324 00:26:06.471 --> 00:26:11.113 but we're also considering it for women that

325 00:26:11.113 --> 00:26:16.059 are completely normal and maybe considering it.

326 00:26:16.059 --> 00:26:21.075 For let's say at age 30-32,

327 00:26:21.075 --> 00:26:25.873 33 and then when they are approaching menopause at age 48-49,

328 00:26:25.873 --> 00:26:27.980 because even with one ovary,

329 00:26:27.980 --> 00:26:36.993 the time to menopause is not different then a woman that has two ovaries and it is a remarkable adaptation of the human body.

330 00:26:36.993 --> 00:26:39.102 So you take one ovary away.

331 00:26:39.102 --> 00:26:41.936 Instead of having menopause at age 51,

332 00:26:41.936 --> 00:26:44.625 for example, you will have it at 48.

333 00:26:44.625 --> 00:26:46.516 But if you have a frozen

334 00:26:46.516 --> 00:26:54.176 ovary and you re transplant that issue when the woman is now 48 and you took it when you were 30,

335 00:26:54.176 --> 00:27:05.431 now you have guaranteed in a way at least another 15 years of endocrine function of estrogen production and that is going to impact in very important ways

336 00:27:05.431 --> 00:27:11.730 on osteoporosis. Like you mentioned on heart conditions and overall well being for women.

337 00:27:11.730 --> 00:27:17.180 So we're talking in this case ovarian rejuvenation over postponing menopause.

338 00:27:17.180 --> 00:27:24.086 And we learned about this from the experience with the conservation in re transplanting ovarian tissue,

340 00:27:27.142 --> 00:27:35.907 We know how to re transplant ovarian tissue and therefore the question was if we can do it with ovarian tissue in a cancer patient,

341 00:27:35.907 --> 00:27:37.501 why not to consider it

342 00:27:37.501 --> 00:27:45.737 in women that want to postpone menopause and don't need to take hormones for a prolonged period of time,

343 00:27:45.737 --> 00:27:49.250 particularly now that lifespan is increased so much.

344 00:27:49.250 --> 00:27:52.980 A woman spending an average of over 30 years in menopause.

345 00:27:52.980 --> 00:27:56.297 So therefore, this is an option that is on the table.

346 00:27:56.297 --> 00:28:00.145 And even though it's under experimental condition at the moment,

347 00:28:00.145 --> 00:28:02.159 it's definitely on the table.

348 00:28:02.159 --> 00:28:10.686 I guess you have to follow women to make sure that the ongoing years of exposure to estrogen from their body turns out not to be harmful.

349 00:28:10.686 --> 00:28:15.720 There was a lot of scare in the old days about people taking high doses of Premarin,

350 00:28:15.720 --> 00:28:19.509 and whether that was influencing cancer and so on.

351 00:28:19.509 --> 00:28:26.276 Back when higher doses of unopposed estrogen were being administered routinely to post menopausal women,

352 00:28:26.276 --> 00:28:29.691 right? That's correct, but I want to add that today,

353 00:28:29.691 --> 00:28:32.397 the way that the medical field is moving,

354 00:28:32.397 --> 00:28:38.260 particularly with the opportunity of doing so much screening for cancer genetic mutations

355 00:28:38.260 --> 00:28:49.666 if we know background or whether or not the particular patient has a family history and presence of particular cancer mutations and the number of mutations that are available

356 00:28:49.666 --> 00:28:52.369 for screening is increasing by the day,

357 00:28:52.369 --> 00:28:54.328 then we can consider two things.

359 00:28:55.991 --> 00:28:58.189 We can transplant ovarian tissue.

360 00:28:58.189 --> 00:29:01.929 The ovarian tissue production of a hormone is natural hormone.

361 00:29:01.929 --> 00:29:08.045 The face of the so called physiological is not the one that has been built or produced.

362 00:29:08.045 --> 00:29:13.685 and therefore we think it is going to be a little bit better.

363 00:29:13.685 --> 00:29:19.741 But I totally agree with you, we have to be very cautious and this is not going to be for everyone.

364 00:29:19.741 --> 00:29:22.769 Well this is fascinating and I think we could

365 00:29:22.769 --> 00:29:26.433 definitely segue into the ethical discussion if we only had time,

366 00:29:26.433 --> 00:29:28.710 but in the mean time we are out of time.

367 00:29:28.710 --> 00:29:34.039 Pasquale, it's great having you here on Yale Cancer Answers and I've totally enjoyed myself.

368 00:29:34.039 --> 00:29:36.926 It's been a terrific show learning about fertility,

369 00:29:36.926 --> 00:29:40.868 preservation and cancer, and it's so hopeful for our younger patients.

370 00:29:40.868 --> 00:29:44.922 And I just think we need to communicate with the oncologist like myself,

371 00:29:44.922 --> 00:29:52.250 who really are not up to date all the time on how your field has really transformed even in the last few years that I've been here.

372 00:29:52.250 --> 00:29:56.845 So congratulations and Kudos. And thank you for having this discussion,

373 00:29:56.845 --> 00:30:05.529 which is extremely important.

375 00:30:08.087 --> 00:30:14.214 As you said, we need to make sure that our colleague oncologists are aware of the options we have.

376 00:30:14.214 --> 00:30:18.557 So many options that we can really make the life of these patients much,

377 00:30:18.557 --> 00:30:27.539 much better for their future. Dr. Pasquale Patrizio is Professor of Obstetrics and Gynecology and Reproductive Sciences at the Yale School of Medicine and

378 00:30:27.539 --> 00:30:32.162 Director of the Yale Fertility Center and fertility preservation program.

379 00:30:32.162 --> 00:30:41.583 If you have questions, the address is cancer-answers@yale.edu and past editions of the program are available in audio and written form at Yalecancercenter.org.

380 00:30:41.583 --> 00:30:48.720 We hope you'll join us next week to learn more about the fight against cancer here on Connecticut public radio.