WEBVTT

00:00:07.507 --> 00:00:12.387 - IVF is the most effective solution for treating infertility.

00:00:12.429 --> 00:00:16.933 IVF involves removing an egg from a patient's body.

00:00:17.225 --> 00:00:19.436 It also includes ovarian stimulation,

00:00:19.436 --> 00:00:23.273 which means medications to grow as many eggs as possible

00:00:23.273 --> 00:00:24.774 and fertilize them,

00:00:24.774 --> 00:00:27.652 and then use the generated embryos that are healthy

00:00:27.652 --> 00:00:31.781 to achieve a pregnancy by transferring one back to the uterus.

00:00:33.533 --> 00:00:35.952 We have seen an immense increase in success rates.

00:00:35.952 --> 00:00:38.621 When you do everything right in today's world,

00:00:38.621 --> 00:00:41.499 you can reach the 60% implantation rates.

00:00:46.463 --> 00:00:52.093 Fertilization failures can happen due to an issue in the sperm primarily

00:00:52.093 --> 00:00:54.596 or to the laboratory processes.

00:00:54.596 --> 00:00:58.141 This is generally circumvented by a process called ICSI,

00:00:58.183 --> 00:01:01.227 which intracytoplasmic sperm injection.

00:01:01.227 --> 00:01:04.230 Rather than putting the sperm around the egg and hoping for the best,

00:01:04.230 --> 00:01:06.024 you just choose a good sperm,

00:01:06.024 --> 00:01:08.276 take it with a needle and put it into the egg,

00:01:08.276 --> 00:01:11.696 and then you're sure that the sperm got into the egg.

00:01:11.696 --> 00:01:13.948 So fertilization happens.

00:01:13.948 --> 00:01:15.533 What can impair,

00:01:15.533 --> 00:01:18.995 what can make it difficult to achieve a pregnancy is

00:01:18.995 --> 00:01:21.706 some autoimmune diseases, systemic diseases,

00:01:21.748 --> 00:01:24.876 Asherman syndrome, endometriosis, PCOS.

00:01:24.876 --> 00:01:28.213 If there are fibroids that are going into the cavity of the uterus

00:01:28.213 --> 00:01:31.132 or there are polyps, adhesions within the uterus,

00:01:31.132 --> 00:01:34.511 they could really decrease the chance of an implantation.

00:01:35.095 --> 00:01:37.806 Ovarian aging is two things.

00:01:37.806 --> 00:01:43.228 One, decreasing the number of eggs that are present in the ovary,

00:01:43.228 --> 00:01:47.190 and the other one is the decreasing quality of those eggs.

00:01:47.232 --> 00:01:50.068 Every woman is born with a number of eggs,

00:01:50.068 --> 00:01:52.570 and they don't make new eggs after being born.

00:01:52.570 --> 00:01:56.324 As the age increases, the pool of eggs that are available,

00:01:56.324 --> 00:01:59.077 the number of eggs that are available in the ovary decreases.

00:01:59.077 --> 00:02:01.287 So if someone doesn't have many eggs

00:02:01.287 --> 00:02:04.415 and doesn't generate many eggs, that really impacts the outcome of IVF.

00:02:05.458 --> 00:02:09.003 When we say quality of eggs, we mean one thing specifically.

00:02:09.003 --> 00:02:11.381 How many chromosomes there are in the egg?

00:02:11.506 --> 00:02:14.676 Every cell in your body should have 46 chromosomes

00:02:14.676 --> 00:02:17.053 other than gametes, sperm or egg.

00:02:17.053 --> 00:02:20.390 Sperm or egg should have 23 chromosomes each

00:02:20.390 --> 00:02:22.809 so that they come together they make 46.

00:02:22.809 --> 00:02:24.853 What happens with age, though?

00:02:24.936 --> 00:02:30.608 Eggs start to make mistakes from the mother stem cell egg as they divide.

00:02:32.277 --> 00:02:35.780 Despite the incredibly high success rates that we have achieved,

00:02:35.780 --> 00:02:37.615 there is still more to be done,

00:02:37.615 --> 00:02:39.951 and that requires additional discoveries

00:02:39.951 --> 00:02:43.037 regarding the eggs or the function of the sperm or the uterus,

00:02:43.037 --> 00:02:46.624 and Yale is committed to that kind of scientific pursuit,

00:02:46.624 --> 00:02:48.626 both in a clinical and basic science.

00:02:54.549 --> 00:02:56.509 Personalized medicine is a

00:02:56.509 --> 00:02:59.179 really important aspect of infertility care.

00:02:59.262 --> 00:03:02.265 Every patient is unique in their needs.

00:03:02.515 --> 00:03:05.935 You may have five patients, all 38 years old.

00:03:05.977 --> 00:03:08.188 They may have different ovarian reserves.

00:03:08.188 --> 00:03:10.940 Their partners may have different sperm counts.

00:03:10.940 --> 00:03:12.692 Their uterus may be different.

00:03:12.692 --> 00:03:16.237 And so you need to really analyze them

00:03:16.279 --> 00:03:19.324 individually with all the parameters that applies to them.

00:03:20.074 --> 00:03:23.036 We are using now a lot of big data analysis.

00:03:23.036 --> 00:03:26.748 We were able to develop a predictive model for our patients.

00:03:26.789 --> 00:03:28.291 It's called Fortune IVF.

00:03:28.291 --> 00:03:29.334 It's available as an app.

00:03:29.334 --> 00:03:32.003 It's available as an online tool,

00:03:32.003 --> 00:03:37.091 and you enter your hormone value, your weight, your age, your partner's age and predict

00:03:37.175 --> 00:03:40.386 how many healthy embryos they can generate.

00:03:40.678 --> 00:03:42.639 The patient can use those tools

00:03:42.639 --> 00:03:45.725 generated by AI and big data

00:03:45.725 --> 00:03:48.394 to predict how hard they have to work to get there.

00:03:48.478 --> 00:03:53.399 It helps them plan their time, finances, other decisions about their life,

00:03:53.399 --> 00:03:58.404 and physicians also use this to see should I offer my patient two cycles, three cycles.

00:03:58.404 --> 00:04:00.573 Does she have coverage? Does she have time?

00:04:00.573 --> 00:04:02.408 So it's a very helpful tool.

00:04:02.408 --> 00:04:08.039 I really think the the field of IVF and infertility is at is at its peak,

00:04:08.039 --> 00:04:09.457 and it can only get better.

00:04:09.499 --> 00:04:12.293 I don't know if there are any other little niches in medicine

00:04:12.293 --> 00:04:15.380 that has been so successful in such a short time,

00:04:15.380 --> 00:04:18.049 and has brought so much happiness to patients.