

D. Tober,¹ K. Richter,² D. Zubizarreta,¹ K. Mostak,¹ S. Kokjohn,³ R. Cool,⁴ C. Garibaldi,¹ N. Villegas,¹ K. Cook,¹ H. Zou,¹ S. Daneshmand³

¹University of California, San Francisco Institute for Health and Aging

²Chief Scientist, Fertility Science Consulting, ³San Diego Fertility Center, ⁴We Are Egg Donors

INTRODUCTION

Ovarian hyperstimulation syndrome (OHSS) is a potentially serious complication associated with controlled ovarian stimulation; the condition ranges from mild, to moderate, severe, and in rare cases critical (1). Moderate to severe OHSS is thought to occur in roughly 1%-5% of all cycles among individuals who undergo ovarian stimulation for their own infertility treatment (1-3). OHSS occurrence in oocyte donors, however, is not well-studied. Drawing on a survey with 289 paid US oocyte donors, this study examines the frequency and severity of ovarian hyperstimulation according to trigger type and reported number of oocytes retrieved. Findings can be used to both improve informed consent for oocyte donors and aid in enhancing clinical practice to reduce OHSS occurrence (4).

METHODS

US egg donors (n=289) undergoing 801 oocyte donation cycles a few months to 27 years earlier (=4.8 years, median 2, interquartile range 1-6) were surveyed regarding egg number per retrieval, trigger type (hCG, Lupron, or combined (Dual)), and severity of OHSS. ANOVA or Kendall's test for significant association were used as appropriate. Mild to moderated OHSS comprised symptoms of mild to moderate abdominal pain, abdominal bloating, nausea and vomiting. Severe OHSS comprised symptoms of severe abdominal pain, intractable nausea and vomiting, rapid weight gain, shortness of breath and in some cases hospitalization or reevaluation in the clinic for aspiration of intraabdominal fluid.

Trigger	Cohort size	Eggs Retrieved					
		Eggs < 10 (n=8)	Eggs 10-19 (n=90)	Eggs 20-29 (n=83)	Eggs 30-39 (n=51)	Eggs 40-49 (n=13)	Eggs 50+ (n=8)
hCG Trigger	Mild OHSS	50.0%	35.6%	37.3%	31.4%	15.4%	37.5%
	Moderate OHSS	12.5%	22.2%	31.3%	35.3%	53.8%	37.5%
	Severe OHSS	0.0%	10.0%	9.6%	11.8%	23.1%	12.5%
Dual Trigger	Cohort size	Eggs < 10 (n=4)	Eggs 10-19 (n=55)	Eggs 20-29 (n=72)	Eggs 30-39 (n=41)	Eggs 40-49 (n=20)	Eggs 50+ (n=19)
	Mild OHSS	75.0%	56.4%	40.3%	29.3%	25.0%	31.6%
	Moderate OHSS	25.0%	27.3%	40.3%	43.9%	50%	31.6%
Lupron Trigger	Cohort size	Eggs < 10 (n=10)	Eggs 10-19 (n=83)	Eggs 20-29 (n=110)	Eggs 30-39 (n=75)	Eggs 40-49 (n=35)	Eggs 50+ (n=24)
	Mild OHSS	70.0%	54.2%	51.8%	45.3%	62.9%	41.7%
	Moderate OHSS	10.0%	15.7%	26.3%	24.0%	22.9%	45.8%
	Severe OHSS	0.0%	1.2%	0.9%	4.0%	8.6%	4.2%

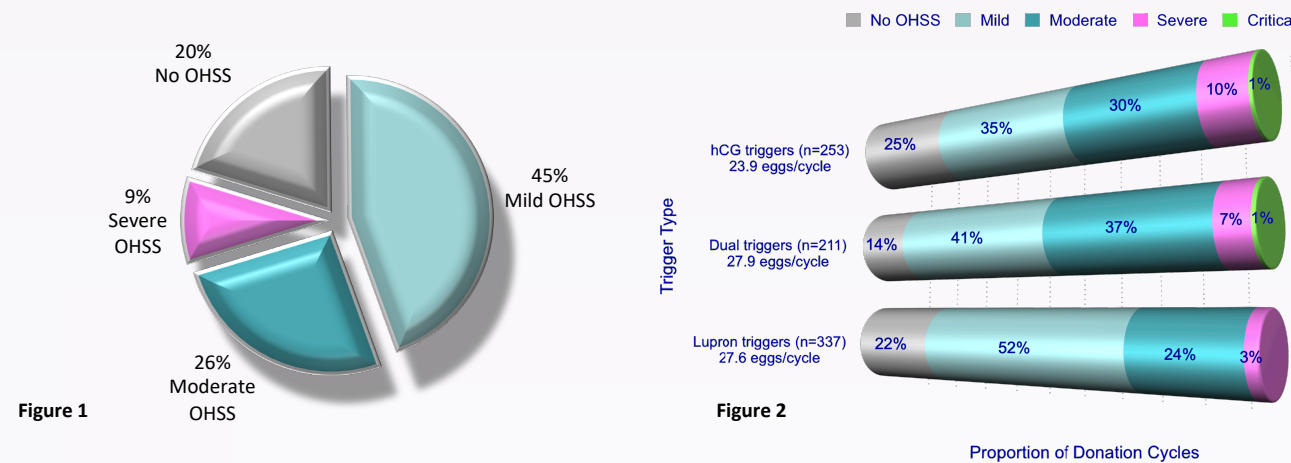


Figure 1

Figure 2

RESULTS

Mild OHSS symptoms were most common, but oocyte donors reported symptoms of moderate OHSS in 26%, and severe OHSS in 9%, of all donation cycles (Figure 1). Donors reported 253 cycles triggered with hCG alone, 337 triggered with Lupron alone, and 211 Dual triggers. Lupron triggers were associated with significantly reduced OHSS symptoms compared to hCG or Dual triggers ($p=0.0002$ for 3-group comparison, $p=0.03$ for Lupron vs hCG, $p<0.0001$ for Lupron vs Dual; Figure 2). Approximately 14% fewer oocytes were retrieved with hCG trigger vs either Lupron or Dual triggers ($X=24$ for hCG vs $X=28$ each for both Lupron and Dual trigger, $p=0.0004$). Adjusting for the smaller hCG trigger cohort sizes, severe OHSS was most common after hCG trigger (10-12% with retrieval of 10 to 39 oocytes, 19% with retrieval of 40 or more oocytes; Figure 3) and lower following dual trigger (5-7% with retrieval of 10 to 49 oocytes, 14% with retrieval of 50 or more oocytes; Figure 4). OHSS was much milder with Lupron trigger, with more than two-thirds of retrievals of fewer than 50 oocytes reporting only mild or no OHSS, and severe OHSS ranging from 1% with retrieval of 10-29 oocytes to 5% with 30 or more oocytes (Figure 5).

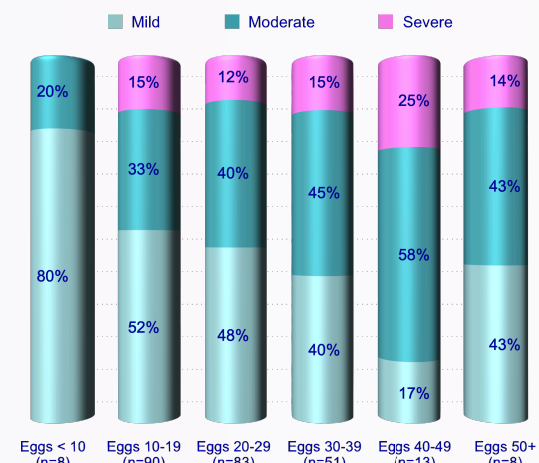


Figure 3

hCG Triggers

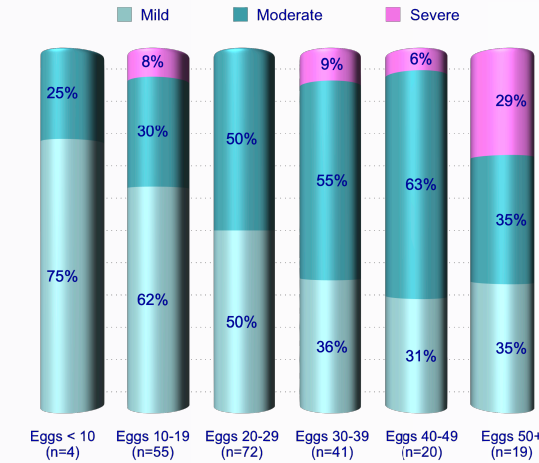


Figure 4

Dual Triggers

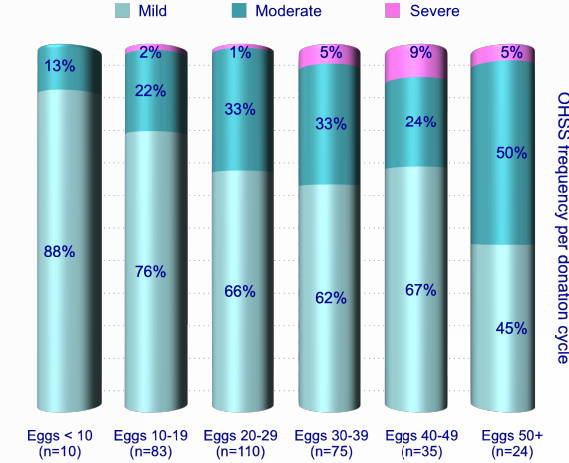


Figure 5

Lupron Triggers

CONCLUSIONS

The results from this study reveal that oocyte maturation trigger injections containing hCG are positively correlated with increased frequency and severity of OHSS in oocyte donors, compared to a GnRH agonist trigger, namely Lupron. Among high-responding egg donors at risk of OHSS (greater than 30 oocytes/cycle), Lupron trigger results in much milder cases of OHSS—and reduction in severe cases—compared to triggers that include hCG but does not appear to completely eliminate risk for the condition. Two cases of critical OHSS were reported among donors receiving hCG but none for the Lupron trigger. While we acknowledge possible errors in donor self-reports, risk for moderate to severe OHSS does appear to increase according to the number of eggs produced in all groups.

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