

ASSISTED CONCEPTION TREATMENT AND PRE-CONCEPTION COUNSELLING IN WOMEN WITH COMPLEX MEDICAL CONDITIONS

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Background

Complex medical and social disorder also known as multiple comorbidity is defined as the presence of two or more chronic health conditions. A lack of pre-pregnancy counselling was highlighted as an increased risk for maternal mortality in the November 2021 MBRRACE report among women who undergo assisted reproductive technology. These women were also highlighted as having pre-existing medical conditions which would have contributed to their poor outcome, hence the recommendation was made for engagement with services pre-pregnancy amongst this group. A unique challenge is found among this group of women who not only seek treatment for the above causes but also have complex medical conditions; classifying them as having multiple medical and social disorders, (multimorbidity). In recent times, we see more women in this group seek access to fertility services due to increased longevity from technological interventions. This includes those with cardiovascular disease and genetic conditions such as Turner’s syndrome. Very few studies have investigated chronic disease in women seeking fertility treatment and even less have focussed on those with multiple medical/social disorders. In order to mitigate adverse outcomes, we implemented a robust preconception counselling programme among this group of women.

Objective

The focus of this study was to look at women with multiple medical disorders who underwent fertility treatment over a ten (10) year period and to look at the fetal and maternal outcomes. We evaluated the outcomes for these women in an effort to assess whether our intervention of early engagement and counselling had an impact on the maternal and fetal health.

Methods

A retrospective observational study of women with complex medical conditions who underwent assisted conception treatment, preconception counselling and delivered locally over a ten-year period was carried out. Our fertility unit electronic database and maternity databases were accessed for information on counselling, fertility treatment and maternal and fetal outcomes. The target population of the study consisted of all women who were eligible for NHS funding of fertility treatment and participated in preconception counselling. Data was compared for those who were referred but did not attend counselling and conceived; and also for those who underwent counselling and

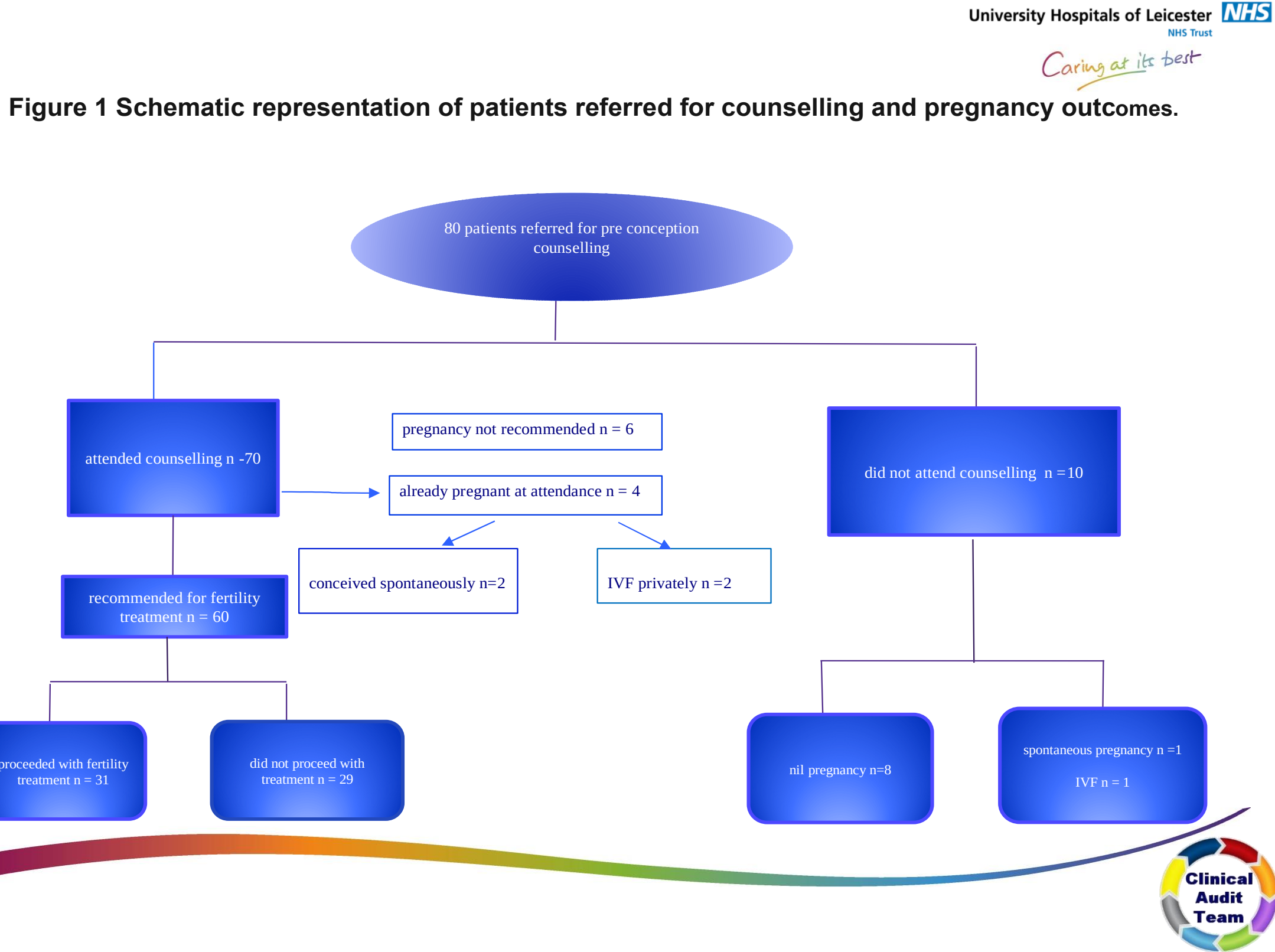
Results

A total of 80 women were referred for preconception counselling from December 2010 - January 2020. The mean age was 33.44 ± SD 5.53, mean BMI 26.49 ± SD 5.10 and mean parity amongst the women was 1.54 SD ± 11.23. Of these 12.5% (n= 10) did not attend counselling. Four patients were seen for pre-conception counselling after becoming pregnant. Two of these patients conceived spontaneously and two had assisted reproductive techniques for conception. All four patients were advised to continue with their pregnancy and had multidisciplinary team input tailored to their care throughout. Six women were advised not to proceed with pregnancy since doing so posed a significant risk to their health and wellbeing.

Results

For those who attended preconception n= 60/70, 85.71 %, were advised to proceed with fertility treatment. Among this group multidisciplinary support and optimisation of medications was needed for 52 %, (n=31/60) of the women. From this group, a total of 33 patients with single medical disorders were advised to proceed with treatment, whereas 27 with multiple medical conditions were advised to do so. Despite being offered fertility intervention and support 48.33 % of the patients, n =29/60, choose not to proceed. The total number of patients who proceeded to have actual fertility intervention was 51.66%, n=31/6.

The flow chart below, (Figure 1) gives a summary of the outcomes after referral to preconception counselling and illustrates the distribution of those who were included in the final analysis.



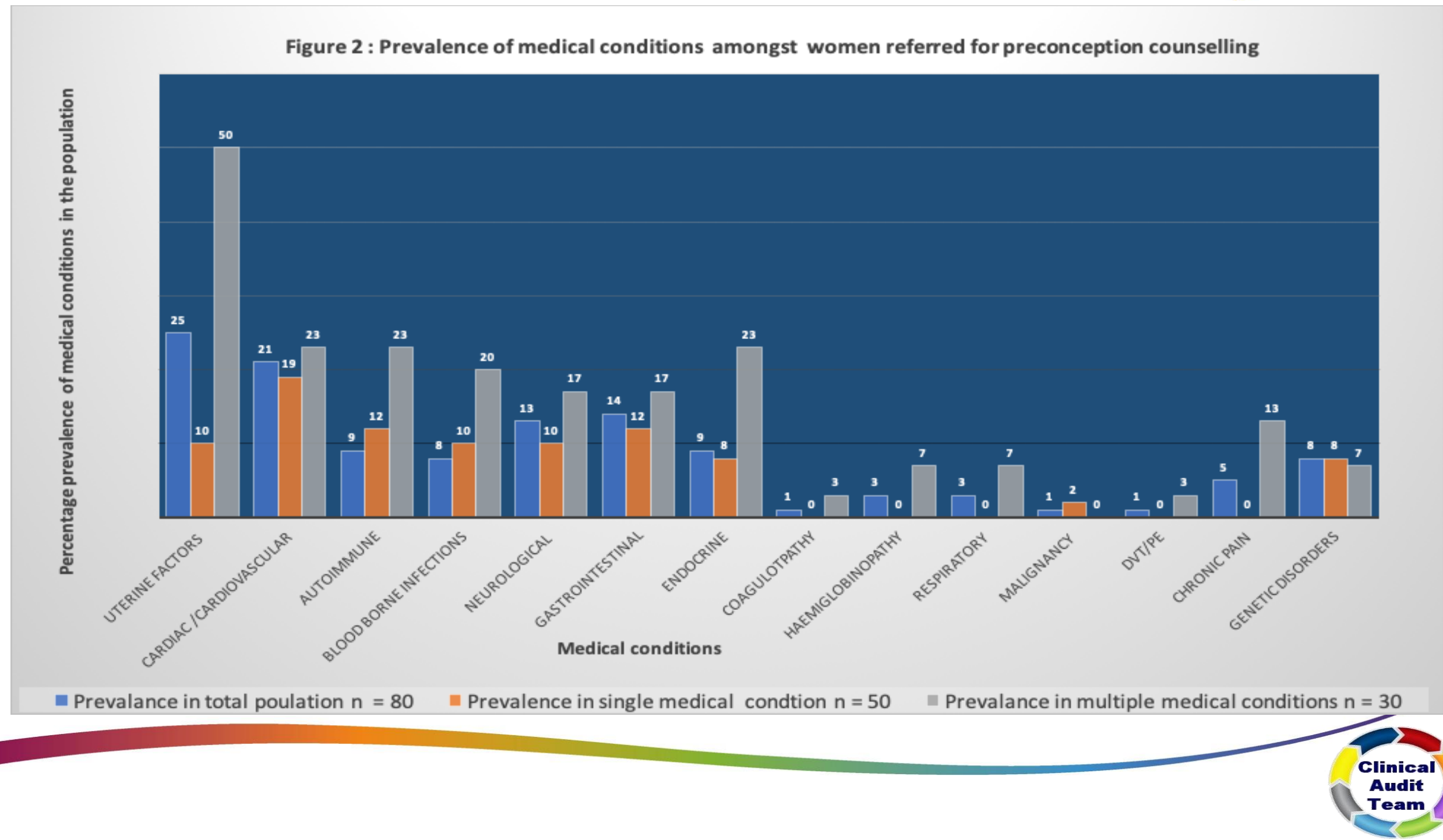
Prevalence of medical conditions in patients referred and those who had ART

The leading condition amongst the patients who were referred for preconception counselling, n = 80, was uterine factors (congenital uterine anomaly, previous complex uterine surgery), which was found in 25 % of the overall population. This included those with fibroids, cervical incompetence, bicornuate and septate uterus. The other most prevalent medical conditions in the population of women who were referred for preconception counselling included: cardiovascular (21%), gastrointestinal (14%), followed by neurological 13% (including bipolar mood disorders).

Results

In comparing the prevalence of pre-existing conditions among the women who were referred for preconception counselling, 62%, n= 50/80 had a single condition and 38% had multiple medical conditions, (n = 30/80). Among those with a single pre-existing condition cardiovascular disorders, 19 % was most prevalent followed by autoimmune and gastrointestinal conditions at 12 %.

Women with a uterine anomaly along with another medical condition, 50%, was most prevalent in those with multiple medical conditions. Also, cardiovascular, autoimmune and endocrine disorders was prevalent in 23 % of those with multiple medical /social disorders. Blood borne infections followed with a prevalence of 20 % along with neurological conditions at 17 % in this group. Chronic pain, immobility, pulmonary embolus/DVT, respiratory, coagulopathy, renal disease and haemoglobinopathy were only found in women with multiple medical conditions. Further details about the prevalence of each medical disorder identified among the population is illustrated in Figure 2.



The patients who conceived were categorised into groups based on their mode of conception: IVF (including frozen embryo transfer, n = 17), ICSI (n = 8), IUI (n= 5) and spontaneous conception n = 3, (see Table 1). There was very little variation with age and BMI among the group regardless of mode of conception however there was variation in parity among the various modes of conception.

Overall there were 20 pregnancies resulting in 15 livebirths and 6 miscarriages. Among the livebirths there were 13 singletons and one pair of twins. There was a pregnancy rate of 67 %, (n= 20/31) amongst those who had fertility treatment, of which 20%, n =4/20, had multiple medical disorders.

The maternal complications during the antenatal period were: gestational diabetes, preterm prelabour rupture of membranes, large for gestational age and gestational hypertension. These were found mainly in the ART group. Admission to the neonatal unit was the only fetal complicating and was found in 37.5 %, n =3/8, of the patients who had IVF.

Results

Table 1: Background characteristics of patients who conceived and the adverse maternal and fetal complications.

Characteristic	IVF (n = 17)	ICSI (n = 8)	IUI (n = 6)	Spontaneous conception (n = 3)
Demographics				
Age(years) Mean ± SD	34.75	6.99	29.67	2.49
BMI(kg/m²) Mean ± SD	24.57	3.92	25.33	4.33
Nulliparous % (n)	47.05	(8)	37.5	(3)
Pregnancy Outcomes				
Pregnancies % (n)	64.70	(11)	75.00	(6)
Singleton % (n)	63.64	(7)	50.00	(3)
Twin % (n)	9.09	(1)	-	(1)
Biochemical % (n)	27.27	(3)	50.00	(3)
Maternal Outcomes % (n)	%	n = 8	%	n = 3
Gestational Diabetes % (n)	12.5	(1)	0	-
Preterm/pre-labour/rupture % (n)	12.5	(1)	0	-
Preterm/birth % (n)	37.5	(3)	0	-
CA3 % (n)	0	-	33.33	(1)
Gestational hypertension % (n)	0	-	33.33	(1)
Large for gestational age % (n)	12.5	(1)	-	(0)

Despite having pre-existing conditions those who had spontaneous conception had no maternal complication antenatally or postnatally. They also had spontaneous vaginal delivery, however the ART group had various interventions to assist with delivery. Caesarean section was carried out in 63 % of those who had IVF and 67 % of those who had IUI.

Assisted vaginal delivery was common in 13% of those who had IVF and 67 % of those with ICSI. The only complication associated with mode of delivery was a 3A tear sustained by one patient who had ventouse delivery and ICSI. Urinary incontinence was confirmed postnatally in on patient who had IVF and delivered with an emergency caesarean section. For both patients, there was no long-term sequela associated with both complications.

Conclusion

■ We do know that patients undergoing ART have greater risk of obstetrics complications. This study has illustrated that women with multimorbid conditions once adequately managed with pre-conception intervention can have successful pregnancies with minimal adverse events during and after their pregnancy.

■ It also confirms the need for multidisciplinary team planning and involvement with women undergoing ART to reduce morbidity and mortality to the mother and also to the foetus.

■ This involves advice and support about medications to optimise pregnancy and changing doses or type of medication to eliminate the risk of teratogenicity.

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