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EDITORIAL

Pelvic congestion needs attention in infertile women with Budd-Chiari syndrome

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The advances in our understanding of the interplay between Budd-Chiari syndrome (BCS) and pregnancy have translated into improved survival. Earlier reports documented BCS occurring in pregnant women as a sinister combination resulting in deaths in up to 50% of the mothers [1, 2]. It is indeed remarkable to note 100% maternal survival in recent reports of BCS in pregnancy (Table 1).

Many of the reports of BCS in pregnancy are from India. The largest series of patients with BCS in pregnancy reported to date features in this issue of this journal [6]. The authors of this study document remarkable improvement in maternal survival with no complications related to pregnancy or liver disease in any of the study patients. The authors also did not find significant delay in diagnosis of BCS in their cohort, contrary to older studies of BCS patients [8]. It is likely that increasing awareness of this condition among clinicians, improved diagnostic modalities and appropriate treatments all have contributed to the excellent maternal survival now reported in these patients.

BCS presenting as acute liver failure or acute-on-chronic liver failure is uncommon and has poorer outcomes. In a previous report from the same center, clinical presentation as acute-on-chronic liver failure was noted in 5% of BCS patients [9]. The current paper on BCS in pregnancy reports acute presentation of BCS in five out of the 121 (4%) study patients [6]. Endovascular therapies may improve survival in these uncommon presentations of BCS [9].

In contrast to the success achieved in maternal outcomes in pregnant women with BCS, fetal outcomes still remain sub-optimal (Table 1). In addition, infertility continues to be a problem in women with BCS.

Primary infertility rates of 19.8%[6]–25%[4] have been reported in women with BCS. Metabolic and hormonal alterations associated with liver dysfunction may contribute to infertility in women with chronic liver diseases.

Another proposed mechanism of infertility or fetal losses in BCS may be pelvic congestion. Obstruction of inferior vena cava (IVC) resulting in congestion of pelvic organs, evidenced by dilated pelvic veins, has been described [10]. An analogy to this hypothesis may be drawn from the link between IVC obstruction and varicocele, which is associated with male infertility. Surgery to correct varicocele improves male fertility by improving sperm count and quality [11].

One study reported 12 women in whom pelvic congestion syndrome was considered the only cause for infertility. Ovarian varices noted on transvaginal ultrasound or pelvic venogram were treated by endovascular means. Subsequently, eight out of the 12 women went on to become pregnant. All patients experienced complete or partial relief of pelvic pain. The authors concluded that embolization of ovarian varices is a safe and effective treatment in women with infertility linked to ovarian varices, who are trying to conceive [12].

A recent study has highlighted increased risk of new-onset heart failure with reduced left ventricular ejection fraction in infertile women [13]. However, congestive heart failure causing pelvic congestion, in turn contributing to infertility, has not been well studied.

Chronic pelvic pain and presence of atypical varicose veins are features of pelvic congestion syndrome. Endovascular treatment is being considered for this condition [14]. Future studies need to focus on symptoms of pelvic congestion and imaging for varices in ovaries and other pelvic organs in patients with BCS who are infertile or have had prior pregnancy losses. Infertility caused by pelvic congestion may be expected to be seen more often in patients with BCS caused by obstruction at the level of IVC than of hepatic veins. Studies are needed to see if treatments to relieve pelvic congestion, if present, will help women with BCS who are infertile or have had prior fetal loss.

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Table 1 Some of the reported series of Budd-Chiari syndrome and pregnancy

Years of study	Number of pregnant women enrolled	Maternal survival	Fetal outcome	Reference no
1963–1978	16	50%	Intrauterine death: 5 (including MTP: 3)	[1]
1967–1991	38	48%	Data not available	[2]
1985–2005	16	100%	< 20 weeks gestation: 7, stillbirth: 1	[3]
2012–2015	60	100%	< 20 weeks: 59 (including MTP: 5), stillbirth: 10	[4]
2001–2015	7	100%	< 20 weeks: 6	[5]
2017–2020	121	100%	< 24 weeks: 16, stillbirth: 1, preterm: 5	[6]
2008–2021	12	100%	< 24 weeks: 8	[7]

MTP medical termination of pregnancy

Hormonal pills are used to treat female infertility and their thrombogenic potential can also lead to exacerbation of underlying hepatic venous thrombosis in BCS [15].

The thrombophilic tendency associated with pregnancy may predispose to venous thromboembolism. In a study of 72 pregnant women, venous thromboembolism developed during the first trimester of pregnancy in 29 (40%) women, in the second trimester in 13 women (18%), and in the third trimester in 30 women (42%) [16]. A population-based study conducted over 30 years identified postpartum period as the time with maximal risk for venous thromboembolism and pulmonary embolism during pregnancy [17]. Acute presentation of BCS during pregnancy is uncommon. Analysis of the clinical features (for example, is this more common in any particular trimester of pregnancy or in postpartum period) may improve our understanding of this uncommon presentation and lead to improved treatment outcomes. Being uncommon, multicenter studies are needed to address this issue.

The use of oral anticoagulants in the first trimester of pregnancy raises the concern of fetal neural tube defects. Hence, low molecular weight heparin is recommended during the first trimester in women who need anticoagulation during pregnancy. As low molecular weight heparin is an expensive parenteral drug, many patients in resource-constrained settings opt for oral anticoagulants to treat BCS during pregnancy. However, teratogenic effects of oral anticoagulants are not predictable [18].

In conclusion, while the exciting advances achieved in treating BCS during pregnancy are laudable, there is scope for further improvement, especially of fetal outcomes in this scenario.

Declarations

Conflict of interest AS, and CEE declare no competing interests.

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