



Twin to twin transfusion disease

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INTRODUCTION

Twin-to-twin transfusion (TTTS) in early pregnancy is associated with significant maternal death rate and illness rate. TTTS is a extreme situation affecting 10% to fifteen% of twins with identical twins who share a placenta (monochorionic) but each have their own inner sac (diamniotic). Invention of unbalanced connective tissue of the placenta inside the shared movement has been implicated in its development. The shipping of TTTS varies extensively, and does not continually proceed as predicted. Consequently, Monochorionic twin pregnancies need to be monitored to discover TTTS symptoms with serial sonograms beginning in the 2nd trimester. Early TTTS may be controlled as it should be. But, without intervention, newly evolved TTTS is associated with a higher charge of start defects and the chance of severe emotional incapacity amongst survivors. Restrained research endorse that fetoscopic laser photocoagulation is the great available treatment for superior TTTS received within the 2d trimester. In spite of laser remedy, there may be still a high risk of dual deaths and neurologic paralysis in survivors.²

TTTS is described as where a vertical packet (MVP) is eight cm or extra in one bag and a couple of cm or much less in every other bag, regardless of the gestational age at analysis. The layout putting the usage of the Quintero staging gadget is usable, efficient and ideal. Transvaginal cervical length checking out ought to be an important part of ultrasound trying out. A pre-operative map to locate the placenta vascular anastomoses and to keep away from damage to the dividing membrane is likewise discussed.³

RISK FACTOR

Being pregnant with same twins or multiples puts a female at danger for having a being pregnant complicated through TTTS. However, TTTS is an indiscriminate situation, taking place at random in Monochorionic pregnancies.⁴

CAUSES

The precise reason of TTTS is unknown. There are numerous variations of blood vessel development that may lead to unbalanced blood change. Further, the foetus's reaction to altered blood extent may additionally get worse the condition.⁵

PATHOLGY

The chance of illness and death of three to seven times for twins better than singletons. As compared Comparison of monochorionic twins and dichorionic twins at extra hazard of maternal mortality and serious illness. In both sorts the twins are in all likelihood to develop aside. The improvement of dichorionic dual issues can be due to differences in placental weight or variations in placental parenchymal lesions, whereas birth defects in monochorionic twins are as a result of placental vascular anastomoses. In this assessment specific varieties of complications because of exclusive Vascular anastomoses combinations are addressed in phrases of a pc model designed to gain extra insight into the improvement of dual transfusions. Syndrome. An angio architecture of 395 twin placentas that are monochorionic changed into studied. Mortality changed into very high in the absence of arterio-arterial anastomosis (42%) and really low within the arterio-arterial anastomosis's existence (15%). when demise takes place, double-time period pregnancy typically has arterio-arterial anastomosis. If the being pregnant changed into complicated with the aid of a single dying, veno-venous anastomosis is much more likely to arise. In end, single-chorionic dual pregnancies are a prime chance factor for pregnancy with a excessive threat of dying and infection; placental capabilities are a first-rate part of the damaging impact on this being pregnant. ⁶

STAGING OF TTTS

The staging system was additionally primarily based at the natural assumption that the specific sonographic shows could constitute distinctive stages of severity.

For that reason, death became an apparent worse presentation than hydrops, which become a worse presentation than anomalous Doppler's, which escalated to a worse presentation than the donor's bladder not being seen, which escalated to a worse presentation than the donor's bladder being visible. For this, the staging system gives the type an ordinal character by using Roman numerals (I–V). The ability to see the donor dual's bladder was the definition of degree. Stage II was defined as the inability to see the donor dual's bladder after at least 60 minutes of nonstop ultrasonography. Stage III became defined because the presence of critically bizarre Dopplers, which includes absent or opposite cease-diastolic speed within the lack of the umbilical artery or opposite go with the flow in the pulsatile umbilical venous flow, or ductus venosus. Level IV was defined as hydrops. Stage V became defined as demise of 1 or both fetuses. stage III and degree IV sufferers may want to gift with a seen bladder or a non-seen bladder of the donor. ⁷

SIGN AND SYMPTOMS

The maximum common signs and symptoms skilled were unexpected weight benefit (seventy six.2%), discomfort (58.2%), and edoema (58.8%). On the other hand, 21.0% of respondents indicated additional symptomatology and chose "different." The terms "tight belly" (22.9%), "rapid belly growth" (20.0%), and "measuring large" (20.0%) had been mentioned the most frequently in this voluntary "other" category. ⁸

DIAGNOSIS

There are many management alternatives available while TTTS is recognized. These consist of expected manage, reduction of amnioreduction, deliberate septostomy (not often achieved but), selective discount, fetoscopic laser photocoagulation, and voluntary pregnancy termination. Amnioreduction can be carried out as soon as or consecutively, at any time after 14 weeks, and is often performed to reduce polyhydramnios to less than 8 cm. Decided on reductions are normally not taken into consideration except TTTS has reached degree III or IV.

Between 15 and 26 weeks of gestation, foetal laser photocoagulation is often carried out under ultrasound guidance with the goal of generating "two chorions." each giving one twin. The procedure can be finished without this time-frame, but there's a special corruption in these timeframes; much less than 16 weeks, there may be a high chance of PPROM, and over 25 weeks, there may be a fantastic deal of trouble in assembling due to the increase inside the size of the vessels. Inside the beyond, it has been advised that you choose selective anastomoses of AV, AA, and VV instead of non-coagulate alternatives. However, there is challenge that some anastomoses can be missed and can have a better threat of twin anaemia polycythemia sequence (TAPS) and TTTS recurrence. Solomon's method became then advanced, which included thickening of a small line from one end of the placenta to the alternative after receiving and binding anastomoses. This technique ends in fewer TTTS recurrences, decreased faucets development, and extended maternal survival, however there's a higher chance of threshold rupture. primarily based on the available facts, the authors of the 2019 replace on TTTS in pleasant exercise and clinical Obstetrics and Gynecology advocate a specific Solomon method in which anastomoses are connected and a small vicinity close to the placenta to fully combine anastomoses coagulation and rescuing a healthy placenta. Management guidelines range by class TTTS and gestational age and are set out below:

Phase I: expected treatment is suggested for similar effects as in contrast to fetoscopic laser photocoagulation and amnioreduction. Weekly ultrasound exams could be taken into consideration. Furthermore, only around 25% of level I TTTS cases continue to a certain extent, and in multiple pregnancies with the anticipated treatment, at least one twin survives Level II, III, IV: For those degrees when the age is less than 26 weeks, foetal laser photocoagulation is typically advised. Senate et al. conducted an average RCT that verified better outcomes following fetoscopic laser coagulation compared to serial amnioreductions. These outcomes included higher neurological outcomes, increased survival rates for one or both twins, and childbirth across several years of pregnancy. It have to be mentioned, this observe did now not include TTTS in level I, consequently, it must not be implemented to managers of that class. Category V: No interventions assessed on this section.⁹

Differential Diagnosis

Selective foetal growth restriction (sFGR), premature menopause (PPROM) and premature rupture of the membranes (PROM), anomalies in the amniotic fluid resulting from twin miscarriage, and twin anaemia polycythemia sequence (TAPS) in exclusive diagnoses TTTS. It's crucial to find out whether the mother has ruptured her membranes by inquiring about any possible or possible leakage of fluid before making a TTTS diagnosis. One twin with a median weight of less than 10% depending on the gestational age is referred to as SIUGR. In addition, there may be an increase in variability within TTTS or vice versa. In MCDA twins, TAPS can develop naturally (1%–5%) or as a complication with fetoscopic laser photocoagulation (16%). Among the ultrasound preterm findings are an odd doppler in the MCA flow for both donor and recipient, indicating anemia in donor and polycythemia in recipient¹⁰

As mentioned above, the death of one or both twins is a TTTS problem, with the survival of one twin from 15% to 70% and the survival of both twins goes to about 50%. Heart issues can also affect both the donor and the recipient; these include vascular changes brought on by the giver's increased collagen synthesis and hypertrophy of smooth muscle layers and vascular media, as well as atrioventricular valve dysfunction, diastolic dysfunction, and pulmonary stenosis or atresia in the recipient. Heart issues can also affect both the donor and the recipient; these include vascular changes brought on by the giver's increased collagen synthesis and hypertrophy of smooth muscle layers and vascular media, as well as atrioventricular valve dysfunction, diastolic dysfunction, and pulmonary stenosis or atresia in the recipient.¹¹

Premature birth is often associated with a higher risk in twin pregnancies, and it is also more likely in TTTS cases. neural deficiencies in all TTTS illnesses and preterm birth associated with an increased risk of cerebral palsy and long-term neurodevelopmental impairment (NDI).¹²

Problems also vary relying at the managers. Anticipated management includes the risk of a level continuity hassle; this chance of development relies upon at the level. capacity headaches of amniotic discount consist of the death of one or both twins (survival quotes following this technique variety from 50 to sixty five%), the need to reduce serial amnio, PPRM, premature birth , placental abruption, contamination. , and a reduction within the potential future fetoscopic laser photocoagulation capability. Furthermore, compared to fetoscopic laser photocoagulation, there is a higher risk of neurological side effects, such as mental impairment, cerebral palsy, and non-differential imaging (NDI), following amnio discount. Fetoscopic laser photocoagulation has numerous potential problems, including PPRM, preterm starting, amniotic fluid discharge, uterine rupture, vaginal haemorrhage, contamination, foetal mortality, recurrent TTTS, and TAPS, even though it is still recommended as a treatment for phase II–IV. [4] Fetoscopic laser photocoagulation can also cause mental impairment, cerebral palsy, and non-developmental impairment (NDI), despite the fact that it is linked to a less risk than amnio reduction. 75% of stage I patients remain solid or regress without therapy at diagnosis.¹³

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