



Obstetric Outcomes Following a Failed NIPT at an Irish Tertiary Maternity Centre

Shah A, Cooley S, Daly S
Rotunda Hospital, Dublin
Royal College of Surgeons in Ireland, Dublin



Background

- Non-invasive Prenatal Testing (NIPT) offers screening for foetal chromosomal abnormalities such as; Trisomy 21, 13, 18 and Monosomy X.
- This test analyses cell-free foetal DNA in maternal blood and offered after the 9th gestational week.
- Fails in 1-3% of tests due to low fetal fraction, influenced by factors like early gestational age, high maternal BMI, placental insufficiency, or multiple pregnancies, or may be linked to future obstetric implications.

Aim

To investigate obstetric outcomes in women who failed to obtain NIPT results from 2021 to 2023.

Methods

Retrospective cohort study comparing maternal characteristics and obstetric outcomes who failed NIPT at the Rotunda Hospital to general Irish obstetric population.

Results

- Total 5,525 NIPTs performed at the Rotunda Hospital from 2021 to 2023.
- 2.7% failed to yield a result
- Gestational Diabetes Mellitus (GDM) in 29.7% of this population
- Hypertensive disorders occurred in 10.8%
- Chromosomal aneuploidies discovered in 7.4% of pregnancies
- Mean BMI 29.8 kg/m2 and average maternal age 37.1 years.

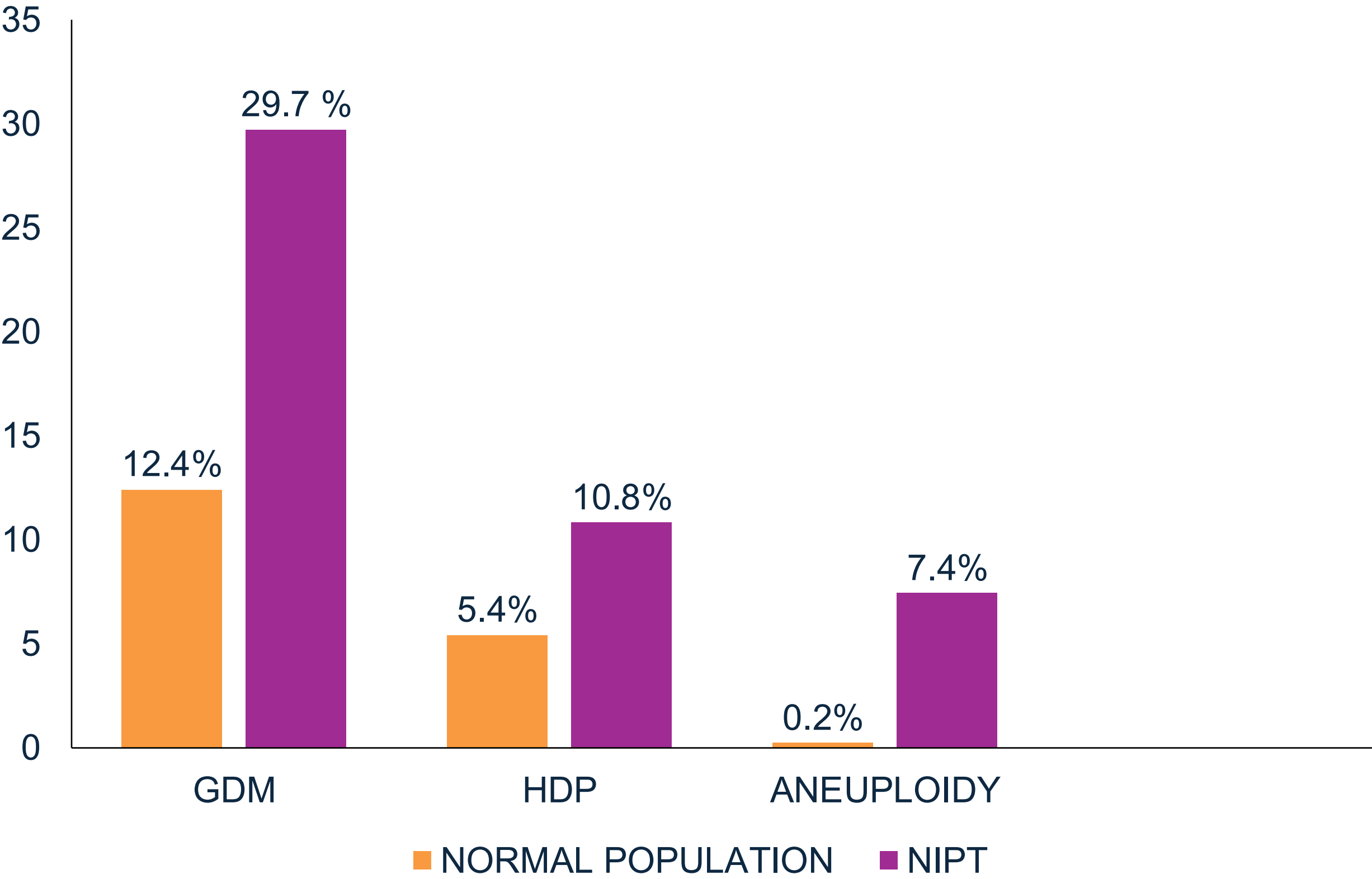


Figure 1: Incidence of Gestational Diabetes Mellitus (GDM), Hypertensive Disorders of Pregnancy (HDP) and aneuploidy following failed NIPT compared to outcomes in the general Irish maternity population.

References

1. Diabetes in pregnancy: A model of care for Ireland 2024. Available at: <https://www.hse.ie/eng/about/who/cspd/ncps/diabetes/moc/diabetes-in-pregnancy-a-model-of-care-for-ireland.pdf> (Accessed: 24 September 2024).
2. Corrigan, L. et al. (2021) 'Hypertension in pregnancy: Prevalence, risk factors and outcomes for women birthing in Ireland', Pregnancy Hypertension, 24, pp. 1–6. doi:10.1016/j.preghy.2021.02.005

Discussion

- We found significantly higher rates of Gestational Diabetes Mellitus (29.7% vs. 12.4%) and Hypertensive Disorders of Pregnancy (10.8% vs. 5.9%) compared to the general Irish obstetric population, suggesting an intrinsic link between test failure and adverse outcomes. (Fig. 1)
- Elevated BMI (mean 29.8 kg/m²) and advanced maternal age (mean 37.1 years) likely compounded risks for both NIPT failure and complications.
- A failed NIPT result may signal placental dysfunction, making it a potential early marker for maternal and fetal risks.

Conclusion

A failed NIPT result is more than a technical issue - it may serve as an early warning for maternal and foetal complications.

Recognising this link enables targeted monitoring, timely intervention, and improved pregnancy outcomes.