

Thyroid function in neonates conceived after hysterosalpingography with iodinated contrast media

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BACKGROUND

- Hysterosalpingography (HSG) is a standard tubal patency test during fertility work-up
- Oil- or water-based iodinated contrast medium is used
- Oil (480mg I/ml) contains more iodine than water (250mg I/ml)
- Previous Japanese study found ↑ risk of congenital hypothyroidism in neonates whose mothers were exposed to high amounts of oil-based contrast during HSG (Satoh et al. 2015)



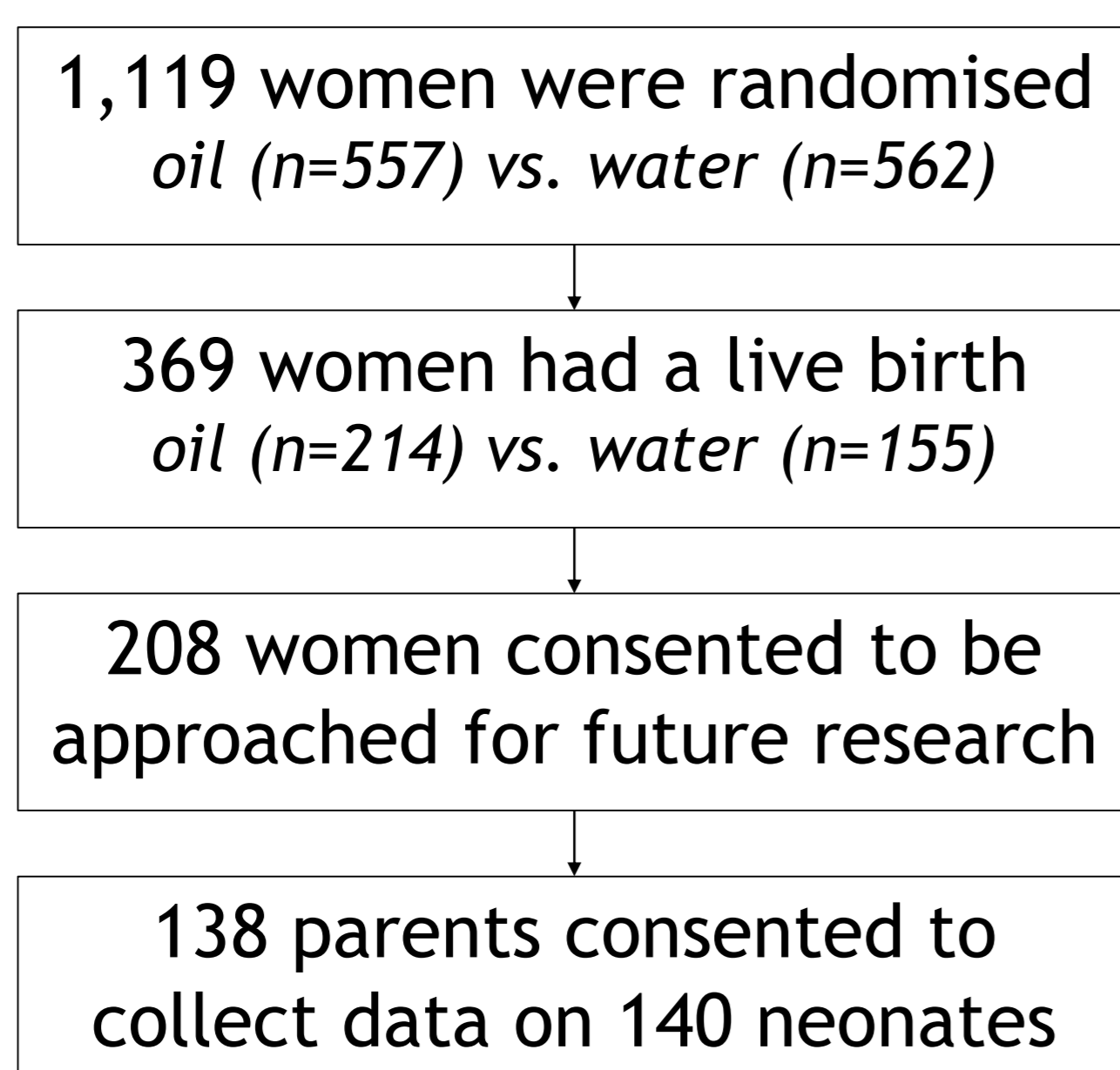
STUDY QUESTION

Does exposure to preconceptional HSG with iodinated contrast (oil- or water-based) affect neonatal thyroid function?

METHODS

- Retrospective study among children born from women randomized for HSG with oil- (n=557) or water-based contrast (n=562) (Dreyer et al. 2017)
- The RCT showed higher pregnancy rates ≤6 months after HSG with oil- as compared to water-based contrast
- Women who had a live born infant in the H2Oil trial were contacted for consent to collect data on their children
- Thyroid function tests were retrieved from the Dutch neonatal screening program for congenital hypothyroidism
 - All neonates had T4, followed by TSH if T4 ≤ -0.8 Standard Deviation (SD) score (based on daily mean)
- Main outcome:** thyroid function tests of neonates conceived after preconceptional HSG

FIGURE 1: FLOWCHART



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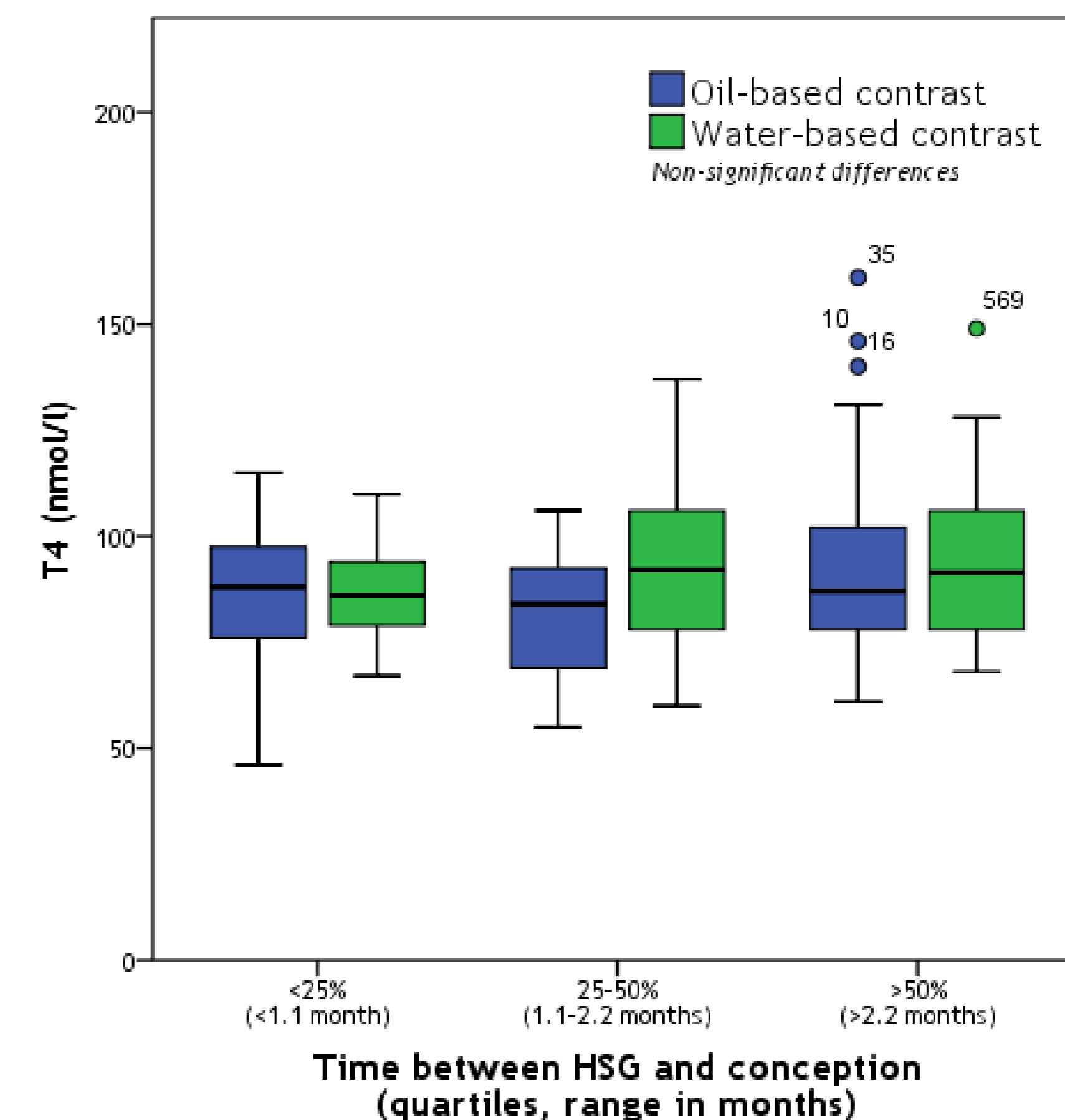
RESULTS

- None of the 140 neonates had a positive screening result for congenital hypothyroidism

	Neonates conceived after HSG with		P-value
	Oil contrast (480mg Iodine/ml) n=76	Water contrast (250mg Iodine/ml) n=64	
Gestational age (weeks)	39.7 [39.0-40.9]	39.6 [38.6-40.7]	0.27
Birthweight ^a (grams)	3470 [3115-3855]	3460 [3065-3721]	0.67
Current use of thyroid hormones	0 (0.0)	0 (0.0)	-
Neonatal screening ^b			
- T4 (nmol/l)	87.0 [76.0-96.0]	90.0 [78.0-106.0]	0.13
- T4 SD ^c	-0.05 [-0.5-0.5]	0.2 [-0.3-0.9]	0.12
Amount of contrast (ml) ^d	9.0 [6.0-11.8]	10.0 [7.5-14.0]	0.43
Duration between HSG and conception (months)	2.3 [1.1-4.3]	2.1 [1.1-4.0]	0.83

Data presented as median [IQR] or number of neonates (%). ^a Birthweight was missing in one neonate in the water group. ^b Neonatal screening result was missing in 1 neonate, due to neonatal screening abroad. ^c The concentration of T4 is expressed as standard deviation (SD) score and is compared with the daily mean. ^d Amount of contrast was missing in 32 versus 39 women.

- 13 children (oil contrast) had a T4 ≤ -0.8SD score versus 7 children (water contrast) (RR, 1.5; 95%CI 0.7 to 3.6, P-value 0.32) → all had a normal TSH



CONCLUSION

- Preconceptional HSG with iodinated contrast (oil- and water-based) did not result in decreased neonatal thyroid function
- Due to lack of information on the maternal thyroid function after HSG, we recommend keeping the amount of contrast as low as possible and further evaluation of the impact on offspring neurodevelopment is needed

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