

Maternal nutritional risk factors associated with neonatal hyperinsulinism

M. Louvigné¹, S. Rouleau¹, E. Caldagues², I. Souto³, Y. Montcho⁴, A. Migraine Bouvagnet⁵, O. Baud⁶, J. Léger⁷, J.C. Carel⁷, G. Gascoin⁸, R. Coutant¹

¹ Endocrinologie Pédiatrique, CHU d'Angers ; ² Pédiatrie, CHU de Nantes; ³ Pédiatrie, CH du Mans; ⁴ Néonatalogie, CH du Mans; ⁵ Néonatalogie, CHU de Nantes; ⁶ Néonatalogie, Hôpital Robert Debré; ⁷ Endocrinologie Pédiatrique, Hôpital Robert Debré; ⁸ Néonatalogie, CHU d'Angers

- Background and Objectives -

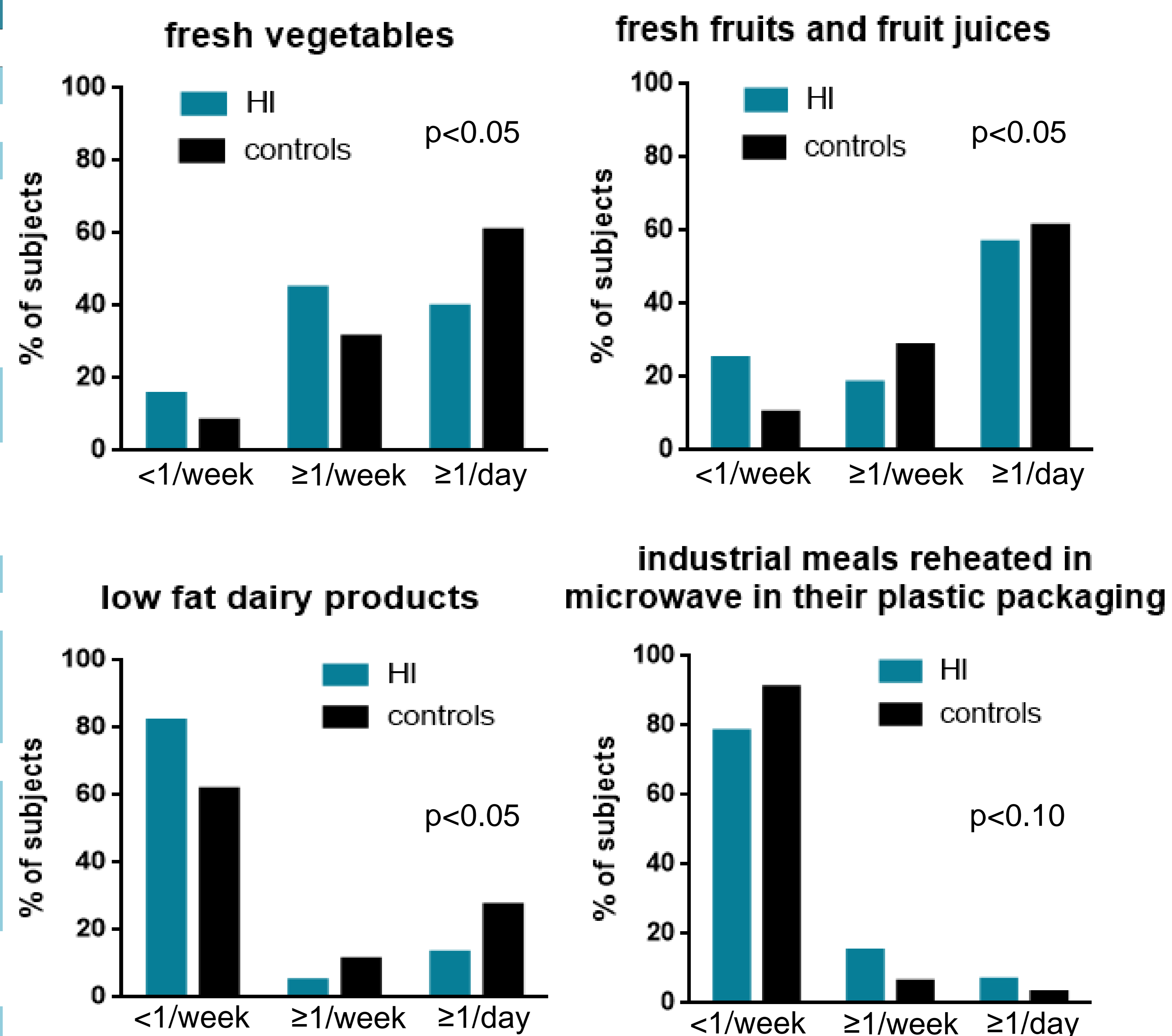
- The causes of transient neonatal hyperinsulinism (HI) are largely unknown, besides intrauterine growth retardation, maternal diabetes, and perinatal asphyxia. Development could be altered in these subjects (1)
- Nutritional factors, including sweeteners, monoacylglycerols and bisphenol A could be associated with an increase in insulin secretion (2)
- Objective: Identification of potential maternal nutritional risk factors which could be associated with neonatal hyperinsulinism**

- Methods -

- Questionnaire investigating dietary habits during pregnancy in mothers of children followed for neonatal hyperinsulinism compared to mothers of control newborns (with no hypoglycemia) matched for gestational age and birth weight
- Exclusion of genetic causes of HI
- Settings : Multicentric study in Nantes, Angers, le Mans, and Robert Debre Hospital (Paris), all in France

- Results -

	HI	Controls	p
N (% of male)	61 (62%)	100 (48%)	NS
Parity	1.7 ± 0.9	1.7 ± 0.8	NS
Maternal age (years old)	30.9 ± 5.5	30.2 ± 4.5	NS
Maternal BMI before pregnancy (kg/m ²)	23.4 ± 4.3	23.8 ± 5.6	NS
Weight gain during pregnancy (kg)			<0.05
<10 kg (%)	26.7	25.3	
10-14 kg (%)	36.7	56.6	
15-20 kg (%)	16.7	13.1	
>20 kg (%)	20	5.1	
Gestational diabetes (%)	16.7	21	NS
insulin treatment (%)	6.7	9	
Specific regimen during pregnancy (%)	23.3	17	NS
for gestational diabetes (%)	15	15	
for weight loss (%)	8.3	2	
Hypertension (%)	23.3	11.1	<0.05
Fetal cardiac rythm anomalies (%)	54	9	<0.05
Mode of delivery			<0.05
vaginal (%)	46	81	
caesarean (%)	54	19	
Gestational age (wks)	38.2 ± 2.3	38.9 ± 2.4	NS
Apgar			
1 minute	8.3 ± 2.4	9.1 ± 2.2	<0.05
3 minutes	9.3 ± 1.4	9.7 ± 1.1	NS
5 minutes	9.8 ± 0.6	9.9 ± 0.4	NS
Cord blood pH	7.18 ± 0.1	7.24 ± 0.08	<0.05
Cord blood lactates (mmol/L)	5.9 ± 2.8	4.1 ± 1.9	<0.05
Birth weight (g)	2790 ± 776	2922 ± 497	NS



Characteristics of children with neonatal hyperinsulinism (HI) and controls (percentage or mean ± SD)

Frequency of consumption of different products by mothers of hyperinsulinemic (HI) and control children

- Conclusion -

- Mothers of children with neonatal hyperinsulinism had a « less healthy diet » during pregnancy in comparison to control mothers
 - Richer in lipids and industrial meals in plastic packaging
 - Poorer in fresh fruits and legumes
- Associated with a greater gestational weight gain

- References -

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The authors have no conflicts of interest