

## Comparison of maternal and neonatal outcome parameters in pregnant opioid maintained women in a clinical trial vs. in standard care

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**Aim:** The aim of this study was to compare maternal and neonatal outcome of opioid-dependent women maintained on buprenorphine or methadone throughout pregnancy in a double-blind, double dummy randomized clinical trial (CT, MOTHER-study<sup>1</sup>) with a patient group undergoing multidisciplinary standard care<sup>2</sup> (standard protocol=SP). The uniqueness of this analysis lies in the comparison of two prospectively followed patient groups within a controlled setting at the same center within the same time frame.

**Methods:** One hundred and fourteen subjects were included in the comparison analysis of two prospectively followed patient groups undergoing multidisciplinary care at the Addiction Clinic of the Medical University of Vienna, Austria, with n=77 in SP (methadone group n=51, buprenorphine group n=26), and n=37 in a randomized double-blind, double-dummy clinical trial (methadone group n=19, buprenorphine group n=18). Maternal measurements: supervised urine toxicologies (combined with contingency management in CT), standardized questionnaires, date/mode of delivery. Neonates: demographical birth data, standardized assessment (modified Finnegan score) of neonatal abstinence syndrome (NAS), required morphine dose, length of stay (LOS).

**Statistics:** A completer analysis was conducted with Chi-square tests or Fisher's exact tests for categorical data, t-tests for independent samples and two-way ANOVAs for comparisons of continuous data. Alpha of p<0.05 was considered significant.

**Results:** No significant differences for concomitant consumption occurred in third trimester of pregnancy (see table 1) between the two groups not differing in mean opioid dose at delivery (p MET=0.315, p BUP=0.068). Infants did not significantly differ in demographical birth data between the two treatment groups. Neonates in SP needed a significantly higher total morphine dose (p=0.014), and had a longer LOS (p=0.015). However, infants exposed to buprenorphine showed higher mean birth weight, and improved outcome regarding all NAS parameters compared to the methadone-exposed group (see table 2).

**Conclusion:** This analysis supports the efficacy of multidisciplinary care in yielding beneficial outcomes for mothers and infants. Higher structured neonatal care in CTs refers to the requirement of improving standard care. Moreover, the results show that both substances have its place in this target group, and the data confirm the favorable neonatal outcome after intrauterine buprenorphine exposure since its early research reporting in 1998<sup>3</sup>.

**Table 1: Demographic birth data and NAS parameters of the neonates.**

	SP (n=77)		CT (n=37)		Significance		
	MET (n=51) Mean (SD)	BUP (n=26) Mean (SD)	MET (n=19) Mean (SD)	BUP (n=18) Mean (SD)			
Dose at time of delivery (mg)	74.16 (39.26)	9.85 (6.24)	63.68 (36.09)	13.44 (6.28)	P <sub>TR</sub>	P <sub>OM</sub>	P <sub>IA</sub>
GA (weeks)	38.59 (1.92)	39.65 (1.62)	38.37 (2.17)	39.72 (2.37)	0.851	0.003	0.722
Weight (g)	2,729 (510)	3,151 (542)	2,862 (403)	2,967 (504)	0.800	0.011	0.124
Head circ. (cm)	32.93 (1.72)	33.56 (1.75)	33.61 (1.70)	33.61 (1.97)	0.319	0.383	0.392
Total morphine dose (mg)	21.61 (26.64)	4.30 (7.30)	5.18 (6.94)	2.02 (1.71)	0.014	0.008	0.061
NAS treatment (days)	21.25 (21.22)	6.62 (8.07)	9.53 (9.14)	7.33 (4.46)	0.079	0.008	0.048
LOS (days)	29.36 (17.94)	13.92 (7.33)	16.74 (6.78)	13.67 (2.63)	0.015	0.001	0.019

P<sub>TR</sub> significance regarding treatment approach (SP vs. CT)  
 P<sub>OM</sub> significance regarding opioid medication (MET vs. BUP)  
 P<sub>IA</sub> significance of interaction between TR and OM

**Table 1: Percentages of patients with positive urine toxicologies in 3rd trimester**

positive for	SP (n=77)			CT (n=37)			P MET	P BUP	P TR
	MET	BUP	SP	MET	BUP	CT			
Opioids	36%	19%	30%	37%	28%	32%	0.932	0.706	0.812
Cocaine	7%	9%	8%	16%	6%	11%	0.355	1.000	0.719
Benzo-diazepines	34%	18%	29%	16%	17%	16%	0.140	1.000	0.153

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This research was supported by NIDA: R01DA018417 (CT), and the Austrian National Bank: Jubiläumsfondsprojekt Nr. 13637 (SP).

Conflicts of interest: None to declare.