

The associations of maternal folic acid intake and folate, vitamin B12 and homocysteine concentrations with dental development in children

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Ethische beoordeling	Positief advies
Status	Werving gestopt
Type aandoening	-
Onderzoekstype	Observationeel onderzoek, zonder invasieve metingen

Samenvatting

ID

NL-OMON28703

Bron

Nationaal Trial Register

Aandoening

folic acid, folate, vitamin B12, teeth, maturation

Ondersteuning

Primaire sponsor: The Generation R Study is conducted by the Erasmus University Medical Center in close collaboration with the School of Law and Faculty of Social Sciences of the Erasmus University Rotterdam, the Municipal Health Service Rotterdam area, Rotterdam, the Rotterdam Homecare Foundation, Rotterdam and the Stichting Trombosedienst and Artsenlaboratorium Rijnmond (STAR), Rotterdam.

Overige ondersteuning: Sources of Support: None

Onderzoeksproduct en/of interventie

Uitkomstmaten

Primaire uitkomstmaten

dental development in children

Toelichting onderzoek

Achtergrond van het onderzoek

Note: This study belongs to the Generation R study (NL6484 / NTR6671)

Summary:

Maternal nutritional status, including vitamins can impact the offspring's tooth formation and mineralization.

We investigated the associations of maternal folic acid use and folate, vitamin B12 and homocysteine concentrations in early pregnancy with dental development in children. Secondly, we checked whether these associations were modified by MTHFR-C677T polymorphism.

This investigation was embedded in the Generation R study, a multi-ethnic population-based prospective. Information on folic acid supplement use was obtained by questionnaires at the enrolment of the study.

Maternal folic acid, vitamin B12 and homocysteine concentrations were measured from the venous samples drawn in early pregnancy. Dental development in 10 year old children was defined using the Demirjian method and the Dutch standard to calculate dental age.

Multivariate regression models were built to analyze the studied associations. Children of mothers who used folic acid supplement either when the pregnancy was known (β , -0.09; 95% CI: -0.17, -0.01) or in a periconceptional time (β , -0.12; 95% CI: -0.20, -0.04) had lower dental age, reflected in the delayed development of the mandibular first premolar and canine. In contrast, higher vitamin B12 concentration in the first trimester of pregnancy was associated with advanced maturity of second premolar (β , 0.20; 95% CI: 0.00, 0.40), first premolar (β , 0.23; 95% CI: 0.01, 0.44) and canine (β , 0.39; 95% CI: 0.17, 0.62). Homocysteine and folate concentrations were not significantly associated with dental age or development of any mandibular tooth. MTHFR-C677T polymorphism did not modify the studied associations. In conclusion, folic acid use during pregnancy is associated with a delayed dental development in children, while maternal vitamin B12 in early pregnancy is associated with advanced dental development.

Doel van het onderzoek

We investigated the associations of maternal folic acid use and folate, vitamin B12 and homocysteine concentrations in early pregnancy with dental development in children. Secondly, we checked whether these associations were modified by MTHFR-C677T polymorphism.

Onderzoeksopzet

one time point, cross sectional

Onderzoeksproduct en/of interventie

observational study, no intervention applicable

Contactpersonen

Publiek

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Wetenschappelijk

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Deelname eisen

Belangrijkste voorwaarden om deel te mogen nemen (Inclusiecriteria)

Mothers with available information on folic acid use and folate , vitamin B12 or homocysteine concentrations; Singleton life born children; Children participating in 9 years follow up measurements

Belangrijkste redenen om niet deel te kunnen nemen (Exclusiecriteria)

twin births, children who did not attend follow up visits at the age of 9 years, excluded children without OPG available or bad image

Onderzoeksopzet

Opzet

Type:	Observationeel onderzoek, zonder invasieve metingen
Onderzoeksmodel:	Cross-over
Toewijzing:	N.v.t. / één studie arm
Blinding:	Enkelblind
Controle:	N.v.t. / onbekend

Deelname

Nederland	
Status:	Werving gestopt
(Verwachte) startdatum:	01-03-2017
Aantal proefpersonen:	3728
Type:	Werkelijke startdatum

Voornemen beschikbaar stellen Individuele Patiënten Data (IPD)

Wordt de data na het onderzoek gedeeld: Nog niet bepaald

Ethische beoordeling

Positief advies

Datum: 16-06-2017

Soort: Eerste indiening

Registraties

Opgevolgd door onderstaande (mogelijk meer actuele) registratie

Geen registraties gevonden.

Andere (mogelijk minder actuele) registraties in dit register

Geen registraties gevonden.

In overige registers

Register	ID
NTR-new	NL6418
NTR-old	NTR6594
Ander register	- : MEC-2012-165

Resultaten