Meta-analyses

Association between breastfeeding duration and postpartum weight retention of lactating mothers: A meta-analysis of cohort studies

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SUMMARY

Background & aims: To clarify the relationship between different breastfeeding duration and postpartum weight retention through meta-analysis.

Methods: In this study, all relevant studies that described the effect of breastfeeding duration on postpartum weight retention were identified from Pubmed, Cochrane, and WANGFANG databases and so on (1960–2016). This meta-analysis had been registered in International Prospective Register of Systematic Reviews (CRD42016038409).

Results: Fourteen cohort studies involving 66 comparisons were included. Compared with bottle-feeding mothers, breastfeeding mothers had significantly lower postpartum weight retention of −0.38 kg (95% confidence interval: −0.64, −0.11 kg). Subgroup analysis showed that, mothers who were primipara, less than 30 years old or normal pre-pregnancy body mass index had lower postpartum weight retention. When breastfeeding duration were stratified into <12 weeks, 12 weeks−24 weeks, 24 weeks−48 weeks, and >48 weeks, postpartum weight retention in breastfeeding women presented a U-shaped trend: a decline during early breastfeeding duration (year 1) (from 0.23 kg at <12 weeks to −1.58 kg at 24−48 weeks) and then an increase in the follow-up duration (from −1.58 kg at 24−48 weeks to 0.97 kg at more than 48 weeks).

Conclusions: Our results indicated that breastfeeding including exclusive breastfeeding and mixed breastfeeding were inversely related to postpartum weight retention. The decreasing influence of breastfeeding was more significant when the lactating mothers were less than 30 years old, primipara, normal pre-pregnant body mass index, or breastfeeding duration for 6−12 months.

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1. Introduction

Overweight and obesity are risk factors for non-communicable diseases such as hyperlipidemia, cardiovascular diseases, diabetes, atherosclerosis, and some cancers [1]. Recently, the morbidity of overweight and obesity has increased worldwide in all age groups, particularly in childbearing women [2]. Childbearing is one of the biological and natural causes of weight gain for the female. Substantial weight is gained during childbearing period for most women, which considerably alters their future weight gain trajectory [2].

Approximately one in six women of childbearing age is obese in wealthy countries; in particular, approximately one in three women are obese in Europe [3] and the number of obese childbearing women increases in America [4]. The National Nutrition and Health Survey Report in 2002 showed that the overweight and obesity rates of 18−44-year-old women are higher than those of the other age groups in China [5].

Postpartum weight retention (PPWR) is the d-value from postpartum weight minus pre-pregnancy weight. Epidemiological evidence showed that PPWR can lead to the development of obesity particularly in childbearing women [2]. Childbearing is one of the biological and natural causes of weight gain for the female. Substantial weight is gained during childbearing period for most women, which considerably alters their future weight gain trajectory [2].

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for the female and exert long-term influence on maternal health
[6], PPWR may cause woman obesity, resulting in increased risks of
diabetes, cardiovascular diseases, and metabolic syndrome in later
life. For women of childbearing age, PPWR is an important bio-
logical and nutritional health problem. Based on the previous
studies, Gunderson and Abrams suggested that PPWR could be
caused by a lot of factors, such as lack of physical exercise, excessive
dietary intake, smoking status lactation duration, pre-pregnancy
body weight, parity, and gestational weight gain [7].
Recently, a number of studies had investigated the relationship
between breastfeeding duration and PPWR with inconsistent re-
results. Breastfeeding significantly decreases maternal weight in
some studies, but this effect was not reported in other studies
[8,9]. Sichieri et al. reported that the women who breastfed ob-
tained a weight gain of approximately 1 kg in comparison with
women who did not [8]. Moreover, breastfeeding duration was not
related to the magnitude of weight change [8]. However, Krause
et al. found that, at 6 months postpartum, breast-feeding was
inversely associated with weight retention by a retrospective
follow-up study. Further, compared with breast-feeding combined
with formula-feeding, full breast-feeding presented a larger
decreasing effect on PPWR [9]. Previous studies on the influence of
breastfeeding on PPWR were in terms of samples, ethnicities, re-
gions, breastfeeding periods, and designs. Hence, no consistent
conclusion has been established.
Meta-analysis is a method combining different results of mul-
tiple studies and obtaining a comprehensive effect value. In this
study, a systematic study search and meta-analysis using cohort
studies were performed to evaluate the influences of different
breastfeeding duration on PPWR of lactating mothers.

2. Materials and methods

According to the Meta-analysis of Observation Studies in
Epidemiology (MOOSE) guidelines, the meta-analysis was per-
formed [10]. This meta-analysis has been registered in International
Prospective Register of Systematic Reviews (PROSPERO) and the
registration number was CRD42016038409.

3. Literature search

Two independent authors (Haer Gao and Mingjun Jiang)
searched articles in English using databases including PubMed
(1966 to June 2016), Cochrane Controlled Trials Register, EMBASE
(1985 to June 2016), Science Citation Index Expanded, BIOSIS Pre-
the guidance of professional librarian. China National Knowledge
Infrastructure Chinese citation database (CNKI) and WANFANG
database were used to search articles in Chinese. Titles, abstracts,
and subject headings were searched through the following key-
words: (“breastfeeding” OR “breast feeding” OR “breast-feeding”
OR “breast-fed” OR “breast-feed” OR “lactation” OR “duration”)
AND (“Postpartum” OR “Post-partum” OR “Post partum” OR “Post
pregnancy” OR “Post-natal” OR “After delivery” OR “After birth”
OR “After childbirth”) AND (“Retention” OR “Retain weight” OR
“Maintain weight” OR “Keep weight” OR “Stabilization” OR “Sustain
weight” OR “Upload weight” OR “weight change” OR “weight gain”
OR “PPWR”) in the databases. In addition, the reference lists of
PPWR relevant and related articles were manually searched to
ensure a complete inclusion. When the required data was only
partially reported in the published articles, authors of articles were
contacted via e-mail to try to obtain all necessary data that were
needed.

4. Inclusion criteria

Studies were included for the meta-analysis if they met all of the
following a-priori-defined inclusion criteria: 1) different breast-
feeding (exclusive breastfeeding and mixed feeding) duration
groups were reported in the study and compared with bottle-fed
group as control; 2) PPWR was documented as a continuous vari-
able between breast-fed group and bottle-fed group; 3) follow-up
time is more than one month. Only publication with the largest
sample was used if the study sample overlapped with that of
another article or if two articles described the aspects of the same
study. If different breastfeeding method, breastfeeding durations,
and postpartum time points were reported in a study, these items
were all included as independent comparisons in the meta-
analysis.

5. Information abstraction and quality evaluation

Information from original studies was independently extracted
by two reviewers through a standardized data collection form. If
there were some disagreements between the two reviewers, the
disagreements were resolved through discussion with the third
reviewer. The following information was extracted: (1) first author
publication year; (2) sample information including country,
maternal age, parity, pre-pregnancy BMI, and sample size; (3) study
characteristics, including breastfeeding definition, PPWR defini-
tion, breastfeeding duration, and postpartum duration; and (4)
information about the value of PPWR.

The Newcastle–Ottawa scale for assessing cohort studies was
used to evaluate the methodological quality of studies in the meta-
analysis [11]. Star was given when follow-up was more than 6
months, the loss to follow up was calculated for the study and re-
ported in the article, and the loss rate was less than 25%.

6. Data analysis

The mean differences in the PPWR of woman breastfeeding
minus the PPWR of woman bottle-feeding were used to calculate
the mean net changes for each subgroup. The weight of each study
was calculated using inverse variance. Weighted mean differences
and the 95% confidence intervals (CIs) were calculated for all cases.
The heterogeneity across trials was tested through Q statistics.
Statistical significance was established at P < 0.10. The I2 statistic
that described the proportion of the total variation caused by het-
erogeneity was also calculated. Both fixed-effects model and
random-effects model were performed in the meta-analysis. If a
heterogeneity test is statistically significant, the random-effects
model was performed as the method of combination. Sensitivity
analysis was estimated by omitting one study in each turn was
conducted to investigate the influence of a single trial on the overall
effect. Moreover, sensitivity analyses were performed by excluding
studies with self-reported pre-pregnancy weight, self-reported
PPWR, without clear definitions of breastfeeding, or without clear
definitions of PPWR. In addition, subgroup analysis was performed
on studies according to the breastfeeding method (exclusive breast,
mixed, or exclusive/mixed), maternal age (maternal age < 30 years
or maternal age > 30 years), maternal parity (primipara or multi-
para), pre-pregnancy BMI (BMI < 25 kg/m² or BMI ≥ 25 kg/m²),
breastfeeding duration (less than 12 weeks, 12–24 weeks, 24–48
weeks, or more than 48 weeks), and time postpartum (less than 12
weeks, 12–24 weeks, 24–48 weeks, or more than 48 weeks).
Furthermore, meta-regression analysis was conducted to assess
whether PPWR differences are related to breastfeeding duration
and time postpartum. Funnel plots, Egger’s linear regression test
and Begg’s rank correlation test were conducted to detect
در اجرای درخواست شما مشکلی رخ داده است

با سلام، متأسفانه مشکلی در فراپند اجرای درخواست شما رخ داده است.

همکاران ما در حال تلاش برای رفع این مشکل هستند.

لطفاً درخواست خود را در ساعات دیگری مجدداً تکرار فرمایید و اگر با هم یا این مشکل رو به روز شدید از طریق فرم تماس با ما به واحد پشتیبانی اطلاع دهید.

برای پیافتن مطلب مورد نظر خود می توانید از روش های جستجوی زیر استفاده فرمایید:

نوریا:
برای جستجو در میان موضوعات، به محض این که عبارت حور را در فیلد زیر تایپ کنید، موضوع های مرتبط در درخت سمت چپ با رنگ متمایز مشخص می شوند.

جستجو...

آگر موضوع مورد نظر شما در لیست موضوعات اصلی وجود نداشت، با استفاده از فیلد زیر می توانید آن را در بین کل مقاله های سایت جستجو قرار دهید.

جستجو...

جستجو

لیست درخواستی موضوعات
تماس با واحد پشتیبانی
همکاران ما در واحد پشتیبانی آمادگی دارند\nتمامی درخواست‌های شما عزیزان را بررسی نموده و در اسرع وقت رضی‌کننده تمامیت میدهند

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با ثبت کد رهگیری پرداخت، می‌توانید
سفارش خود را پیگیری نموده و به مدت
امام ترجمه، فایل ترجمه مقاله خود را
دانلود نمایید.

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