2012 年 8 月 24 日

「早期母子接触」実施の留意点

日本周産期・新生児医学会

【「早期母子接触」実施の留意点】

1. 「カンガルーケア」とは、全身状態が安定した早産児に NICU（新生児集中治療室）内で従来から実施されてきた母子の皮膚接触を通常指す。一方で、正期産新生児の出生直後に分娩室で実施される母子の皮膚接触は、異なるケアが求められるにも関わらず、この「カンガルーケア」という言葉が国内外を問わず用いられ、用語の使用が混乱している。そこで、正期産新生児の出生直後に実施する母子の皮膚接触については、ここでは「早期母子接触」と呼ぶ。

2. 出生直後の新生児は、胎内生活から胎外生活への急激な変化に適応する時期であり、呼吸・循環機能は容易に破綻し、呼吸循環不全を起こし得る。したがって、「早期母子接触」の実施に関わらず、この時期は新生児の全身状態が急変する可能性があるため、注意深い観察と充分な管理が必要である（この時期には早期母子接触の実施に関わらず、呼吸停止などの重篤な事象は約 5 万出生に 1 回、何らかの状態の変化は約 1 万出生に 1.5 回と報告されている）。

3. 分娩施設は、「早期母子接触」実施の有無にかかわらず、新生児蘇生法（NCPR）の研修を受けたスタッフを常時配置し、突然の児の急変に備える。また、「新生児の蘇生法アルゴリズム」を分娩室に掲示してその啓発に努める。

4.「早期母子接触」を実施する施設では、各施設の実情に応じた「適応基準」「中止基準」「実施方法」を作成する。

5. 妊娠中（たとえばバースプラン作成時）に、新生児期に起き得る危険状態が理解できるように努め、「早期母子接触」の十分な説明を妊婦へ行い、夫や家族にも理解を促す。その際に、有益性や効果だけではなく児の危険性についても十分に説明する。

6. 分娩後に「早期母子接触」希望の有無を再度確認した上で、希望者にのみ実施し、そのことをカルテに記載する。

【解説】

1）名称について

カンガルーケアと称されるケアには、NICU で早産児を対象に行われるケアと、正期産新生児を対象に出生直後に分娩室で行われる母子の早期接触の 2 種類がある。前者を一般的にカンガルーケアと呼び、後者を skin-to-skin と呼ぶことが多い。

しかしながら、両者の呼び方は混同されることが多く、欧米の論文においても、Kangaroo care、Kangaroo mother care、skin contact、skin to skin contact、early skin to skin contact、skin-to-skin(kangaroo)、skin-to-skin contact on preterm infants などの呼び方が NICU 内のケア、出生直後のケア両方に用いられている。

そこで、混乱を避けるために、本稿では出生直後に分娩室で行われる母子の早期接触を「早期母子接触」と呼び、英名としては「early skin-to-skin contact」または「Birth Kangaroo Care」を提案したい。

2）背景

出生後早期から母子が直接肌を触れ合い互いに五感を通して交流を行うことは、人間性発露の面から見ても、親子が育みあうという母子の当然の権利ともいえる。さらに、早期母子接触は科学的にその有効性が証明されているのみならず、一定の条件の下に安全に実施すれば決して危険ではない。

しかし昨今、早期母子接触中の呼吸停止などの重篤な事象およびその訴訟に関する報道が多く認められる。報道のなかには、明らかに原因が早期母子接触とは異なる事例が、早期母子接触が原因であり早期母子接触自体が危険であるかのような取り上げ方が目立つ。しかしながら、こうした危急事態は早期母子接触を行わなくとも生じ得るものである。

早期母子接触の有効性は、コクランのシステマティック・レビュー[1)]によると、生後 1-4 ヵ月の母乳栄養率を向上させ、母乳期間を延長する効果がみられた。さらに、母親の児に対する愛着行動や母子相互関係の確立などに対する効果が証明されている。その効果はタッチングなど授乳中の効果だけでなく、退院後のキスなどの愛着行動の多さにも表れている。また、正期産児においての検討では、早期母子接触群はコントロール群に比べ、心拍数、呼吸数、血糖値、体温の安定化が認められた[2)]。反対に、生後早期の母子分離は、児の啼泣を強め、卵円孔を通しての右左シャントを増加させ、肺血流を減少させるため動脈血の酸素化が妨げられる[3)]。 したがって、早期母子接触には児の啼泣時間を短縮させる効果があることから、児の動脈血の酸素化にも寄与すると考えられる。

このように早期母子接触の利点は証明されているが、一方で早期母子接触が行われる出生後早期は、胎児から新生児へと呼吸・循環の適応がなされる不安定な時期でもある。特に、この時期の循環動態は卵円孔、動脈管などのシャントが残り、寒冷刺激、アシドーシス、低体温などで容易に肺高血圧から右左シャントが惹起され、危急事態が起こり得る。

したがって、早期母子接触の実施の有無にかかわらず、生後早期は不安定な時期であるとの認識は持たなければならない。

3）急変例の発症頻度の報告

早期母子接触中の急変例の発症率について、全国の「赤ちゃんにやさしい病院」を対象とした実態調査が 2010 年行われた。その結果 42 施設から回答を得（回答率 87.5%）、23 施設（54.8%）で原因不明のチアノーゼや心肺停止、転落しそうになった（早期母子接触中の児の転落事故も報告されている）新生児の計 57 例が経験された。このうち分娩数が記載された 30 施設を対象とした検討では、乳幼児突然死-乳幼児突発性危急事態（SID-ALTE）の事例は1例であり、その発症率は 1.1/10 万出生であった。同一対象施設における分娩直後の早期母子接触導入前のそれは5例であり、発症率は 5.5/10 万出生であった。このように、SID-ALTE など心肺蘇生を必要とした事例の発症は、早期母子接触導入によって増加していなかった[4)]。

2009 年のドイツにおける小児科医に対するアンケート調査によれば、生後 24 時間以内での SID-ALTE の発症例は 665,126 例中 17 例で、発症率は 2.6/10 万出生であった。17 例中 7 例が死亡し生存 10 例のうち 6 例が退院時に神経学的後遺症を有した。また 17 例中 12 例が早期母子接触中の急変であった（1.8/10 万出生）。さらに、9 例は最初の 2 時間での発症で、このうち 7 例は母親が睡眠していないにも関わらず児の急変に気づかず、スタッフにより発見された[5)]。

2012 年のイギリスにおけるサーベイランス[6)]では、在胎 37 週以上で、Apgar スコア 5 分値 8 点以上の正期産新生児のうち、生後 12 時間以内の急変により陽圧換気による蘇生が必要か、死亡もしくは集中治療が必要となった児は、858,466 出生中 45 例で 12 例が死亡した（5.2/10 万出生）。 45 例中 24 例は臨床経過もしくは病理学的検査により、授乳中もしくは腹臥位の状態での気道閉塞と診断された。15 例は後に先天性疾患が判明し、残る 6 例では急変の原因となる基礎疾患は見つからなかった。気道閉塞と診断された 24 例は授乳中もしくは早期母子接触中の急変であった。ほとんどの母親は初産婦で、スタッフによる見守りは行われていなかった。

また、ドイツ、フランス、イギリスの状況を総括した 2012 年の報告によると、出生時に問題を認めない正期産新生児が、出生後 24 時間以内に急変して蘇生処置が必要な児は、10 万出生当たり 2.6 から 5.0 人となった[7)]。

4）我が国の全国調査結果

こども未来財団の研究「分娩室・新生児室における母子の安全性についての全国調査」[8)]で、2010 年の早期母子接触の全国調査が行われた。我が国の全分娩施設の約 1/4 にあたる助産所（144 施設）、病院・診療所（308 施設）、周産期センター（133 施設）の 585 施設から回答が得られた。ただし、ここでいう児の変化は、前述の命に関わる事態（児の急変）とは定義しておらず、施設の自己申告であり、軽症なものも含まれる。

早期母子接触は、

◆65.4%の施設で実施されていた。

◆実施基準の整備率は 30.7%であった。

◆実施前の妊婦への十分な説明と同意取得率は 48.2%であった。

◆分娩台の角度基準が設定されている施設は 13.0%であった。

◆中断・中止基準が設定されている施設は 39.9%であった。
◆開始時期は出生直後が 35.5%、1-5 分が 41.8%、6-10 分が 7.8%、15 分以上が 14.9%であり、約 8 割の施設は出生後 5 分以内に開始されていた。
◆実施時間は 10 分間以内が 28.5%、15-30 分間が 27.7%、40-60 分間が 19.7%、90 分間以上は 19.9%であった。
◆医療従事者の常駐率は 74.8%であったが、児の全身状態の記録率は 28.3%であった。
◆各種モニタリング実施率は 49.9%であり、パルスオキシメータは 42.4%に装着されていた。
◆児の変化(これは前述のような重篤な状態に限らない)経験施設率は 4.2%であった。
◆児の変化の発生率は 138,534 例中 21 例(15.2/10 万出生)であり、約 1 万の早期母子接触中 1.5 人、児の変化が発生したことが確認された。

以上の全国調査から、十分な説明と同意、実施方法の整備が行われず、約 6 割の施設ですでに早期母子接触が導入されていることが判明し、早急な対策が必要なことが明らかとなった。

5)急変例の病態把握

現在までの事例において、危急事態の病因については、いくつかの原因疾患(遷延性肺高血圧、新生児呼吸障害、先天性心疾患等その他の先天異常、細菌感染症、代謝性疾患)などが診断されている例もあるが、実際には病因不明の場合も多く、今後の病態把握に関する研究が望まれる。

6)早期母子接触の適応基準、中止基準、実施方法

施設の物理的、人的条件等により、ここに推奨する基本的な実施方法を一部変更せざるを得ない場合がある。そのような場合にも、早期母子接触の効果と安全性について十分に吟味し、母子の最大の利益となるように実施方法を決定する。また、早期母子接触を実施しない選択肢も考慮すべきである。

以下に経腟分娩を対象とした各基準を示す。

＜適応基準＞

母親の基準

・本人が「早期母子接触」を実施する意思がある
・バイタルサインが安定している
・疲労困憊していない
・医師、助産師が不適切と認めていない

児の基準

・胎児機能不全がなかった
・新生児仮死がない(1 分・5 分 Apgar スコアが 8 点以上)
・正期産新生児
・低出生体重児でない
・医師、助産師、看護師が不適切と認めていない

＜中止基準＞

母親の基準

・傾眠傾向

・医師、助産師が不適切と判断する

児の基準

・呼吸障害（無呼吸、あえぎ呼吸を含む）がある

・SpO_2：90％未満となる

・ぐったりし活気に乏しい

・睡眠状態となる

・医師、助産師、看護師が不適切と判断する

＜実施方法＞

早期母子接触は母子に対して種々の利点がある。したがって、早期母子接触を実施できない特別な医学的理由が存在しない場合は、周産期医療従事者として、その機会を設けることを考える必要がある。早期母子接触は医療ではなく、ケアであることから、母親とスタッフ間のコミュニケーションがスムーズに行われている必要があり、出産後の母子を孤立させない配慮が大切である。特に、早期母子接触を実施する時は、母親に児のケアを任せてしまうのではなく、スタッフも児の観察を怠らないように注意する必要がある。

◆バースプラン作成時に「早期母子接触」についての説明を行う。

◆出生後できるだけ早期に開始する。30 分以上、もしくは、児の吸啜まで継続することが望ましい。

◆継続時間は上限を 2 時間以内とし、児が睡眠したり、母親が傾眠状態となった時点で終了する。

◆分娩施設は早期母子接触を行わなかった場合の母子のデメリットを克服するために、産褥期およびその後の育児に対する何らかのサポートを講じることが求められる。

母親

・「早期母子接触」希望の意思を確認する

・上体挙上する（30 度前後が望ましい）

・胸腹部の汗を拭う

・裸の赤ちゃんを抱っこする

・母子の胸と胸を合わせ両手でしっかり児を支える

児

・ドライアップする

・児の顔を横に向け鼻腔閉塞を起こさず、呼吸が楽にできるようにする

・温めたバスタオルで児を覆う
・パルスオキシメータのプローブを下肢に装着するか、担当者が実施中付き添い、母子だけにはしない
・以下の事項を観察、チェックし記録する
呼吸状態:努力呼吸、陥没呼吸、多呼吸、呻吟、無呼吸に注意する
冷感、チアノーゼ
バイタルサイン(心拍数、呼吸数、体温など)
実施中の母子行動
・終了時にはバイタルサイン、児の状態を記録する

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【参考資料】

1）バースプラン記載用資料（例）

バースプランとは、ご自分の出産イメージについてあらかじめ希望を伺い、ご自身の理想に近づけるようお手伝いをさせて頂くためのプラン作成のことです。以下についてご希望をお聞かせください。

1 出産について

分娩：

□自然分娩を希望します

□計画分娩を希望します

□無痛分娩を希望します

家族等の立会い

□分娩時の立会いを希望します ⇒（ 夫 実母 その他 ）

□分娩時の立会いを希望しません

2 分娩室・陣痛室での過ごし方について（ ）

3 出産後すぐの肌と肌との触れ合い（早期母子接触）について＊

□希望します

□希望しません

4 赤ちゃんへの栄養について（ ）

5 赤ちゃんとの過ごし方について（ ）

6 その他の希望について自由に記載ください （ ）

……

＊出産後すぐの肌と肌との触れ合い（早期母子接触）について

出産後、母子は共に過ごすことは自然であり、母子関係に良い影響を及ぼします。特に出産後早期の肌と肌の接触は、母乳育児、お子さんとお母さんの心身の安定に効果があります。30 分以上の実施を原則としますが、お子さんの状態、お母さんの分娩時の疲労など、状況に合わせて実施していきます。

出生直後のお子さんは、胎外生活への適応をする、不安定で変化しやすい時期でもあります。急変は約 1 万人に 1 人、重篤な事例は約 5 万人に 1 人発生すると報告されています。したがって、触れ合いを行っている間は、助産師（看護スタッフ）が十分見守るあるいはモニターを装着するとともに、抱き方などを指導いたします。

貴方が肌と肌との触れ合いを希望する場合は、バースプランに記載していただくようにお願いいたします。

2）分娩直後の皮膚接触関与的観察票（例）

生後時間	**10 分**		**30 分**		**60 分**		**90 分**		**120 分**
時刻	:	:	:	:	:	:	:	:	:
児のバイタルサイン	ピンク	ピンク	ピンク	ピンク	ピンク	ピンク	ピンク	ピンク	ピンク
皮膚色	紅潮	紅潮	紅潮	紅潮	紅潮	紅潮	紅潮	紅潮	紅潮
	暗紫色	暗紫色	暗紫色	暗紫色	暗紫色	暗紫色	暗紫色	暗紫色	暗紫色
	蒼白	蒼白	蒼白	蒼白	蒼白	蒼白	蒼白	蒼白	蒼白
チアノーゼ	口唇	口唇	口唇	口唇	口唇	口唇	口唇	口唇	口唇
	顔面	顔面	顔面	顔面	顔面	顔面	顔面	顔面	顔面
	四肢	四肢	四肢	四肢	四肢	四肢	四肢	四肢	四肢
	全身	全身	全身	全身	全身	全身	全身	全身	全身
多呼吸（呼吸数 60 以上）	有　無	有　無	有　無	有　無	有　無	有　無	有　無	有　無	有　無
呼吸障害	有　無	有　無	有　無	有　無	有　無	有　無	有　無	有　無	有　無
SpO2									
HR									
BT（直腸）									
児の覚醒状態									
高度に眠りがち									
眠りがち									
安静覚醒(母親の上にいる)									
動的覚醒									
啼泣									
顔の位置　側方									
正面									
母親の覚醒状態									
覚醒									
傾眠									
睡眠									
授乳行動									
なし									
お乳を吸わせようとしている									
介入(具体的に)									
担当者サイン									

3）早期母子接触実施に関する診療録記載基準（例）

早期母子接触に関して、妊娠中のバースプランの説明から早期母子接触終了まで診療録に記載する。実施主体者は助産師である場合が多いが、十分な説明と本人の希望の有無、実施前中後の観察記載が重要である。また、その後の母子相互関係への援助のためにも心理面の変化にも着目した記載とする。

施設によって早期母子接触実施方法が異なる、あるいは SOAP、経時記録など診療録の記載基準が異なる場合は、施設の状況に合わせて記載基準を作成する。

バースプラン説明時から早期母子接触終了までの記載内容

(1)バースプラン説明時

①効　　果:　母子相互関係、母乳育児、母子の心身の安定

②実施方法:　母子ともに元気な場合、児の羊水を拭き取り、出生直後から 30 分以上掛物による保温下で肌と肌を接触させて実施

③注 意 点:　胎外生活への適応期に伴う不安定な時期
抱くことに慣れていないことによる児の呼吸抑制

④実施体制:　抱き方を指導するとともに、実施中スタッフが付き添う、あるいは機器（パルスオキシメータ等）を装着し継続モニタリングする。

⑤早期母子接触を希望する、希望しないに関わらずいつでも変更可能

(2)早期母子接触実施前

①希望がある:　　希望がない（バースプラン記載の希望の有無に関わらず確認し記載する）

②本人の状態:　　疲労していない

③児の状態:　　1 分後 Apgar スコア８点以上

④児のドライアップ: 抱き方確認　保温バスタオルで覆う

⑤体 位:　　上体挙上

⑥開始時間

(3)早期母子接触実施中の観察

①母・家族の状況:抱き方　緊張・不安の有無　児への声掛け　表情など

②児の状況:　　皮膚色　冷感　呼吸状態（必要に応じて呼吸・循環・体温の計測値）
体動　乳頭吸着行動

(4)早期母子接触終了時

①終了時間

②母子・家族の状況観察と満足度

早期母子接触テンプレート(例)(電子カルテなどの場合に活用)

(1)テンプレート名:早期母子接触(バースプラン説明)

□効　　果:母子相互関係、母乳育児、お子さんとお母さんの心身の安定

□実施方法:母子ともに元気な場合、児の羊水を拭き取り、出生直後から 30 分以上、掛物による保温下で肌と肌を接触させて実施

□注 意 点:胎外生活への適応期に伴う不安定な時期
抱くことに慣れていないことによる児の呼吸抑制の可能性

□実施体制:抱き方を指導するとともに、実施中スタッフが付き添う、あるいは機器(パルスオキシメータ)を装着し継続モニタリングする

□早期母子接触希望の有無に関わらずいつでも変更可能

(2)テンプレート名:早期母子接触(実施前)

□早期母子接触の希望がある　□早期母子接触の希望がない

□疲労が少なく早期母子接触ができる状態である

□疲労が大きく早期母子接触ができない状態である

児の 1 分後 Apgar スコア(　)点、5分後 Apgar スコア(　)点

□児のドライアップ　□抱き方確認　□バスタオルでの保温

□上体挙上約(　　)度

(　　)時(　　)分開始

(3)テンプレート名:早期母子接触(実施中)

母・家族の状況(　フリーテキスト入力　)

児の状況:皮膚色　(リスト選択　チアノーゼなし、チアノーゼあり)

呼吸状態(リスト選択　異常呼吸なし、異常呼吸あり)

(　フリーテキスト入力　)

(4)テンプレート名:早期母子接触(終了)

(　　)時(　　)分終了　(　)時間(　　)分実施

母子・家族の状態(　フリーテキスト入力　)

母と家族の満足度(　フリーテキスト入力　)

作成：日本周産期・新生児医学会理事会内「早期母子接触」ワーキンググループ

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Points to Bear in Mind in Regard to the Implementation of "Early Mother-Infant Skin-to-Skin Contact"

October 17, 2012

Japan Society of Perinatal and Neonatal Medicine
The Japan Society of Obstetrics and Gynecology
Japan Association of Obstetricians and Gynecologists
Japan Pediatric Society
Japan Society for Premature and Newborn Medicine
The Japanese Society of Pediatric Surgeons
Japanese Nursing Association
Japanese Midwives Association

[Points to Bear in Mind in Regard to the Implementation of "Early Mother-Infant Skin-to-Skin Contact"]

1. "Kangaroo care" usually refers to the skin contact between mother and infant that has traditionally been performed in NICUs (neonatal intensive care units) for premature infants whose general condition has stabilized. However, the term "kangaroo care" is being used both in Japan and abroad for the mother-infant skin contact that is performed in the delivery room immediately after the birth of term newborns, even though other care may be required, and use of the term is confusing. In this paper we will therefore refer to the mother-infant skin contact that is performed immediately after the birth of term newborns as "early mother-infant skin-to-skin contact."

2. Immediately after birth is a time when newborns adapt to the abrupt changes between intrauterine life and extrauterine life. It is a time when respiratory and circulatory functions easily break down, and respiratory and circulatory failure may develop. Thus, because the general condition of newborns may suddenly change during this period irrespective of whether "early mother-infant skin contact" is implemented, very careful monitoring and adequate management are necessary (it has been reported that irrespective of whether early mother-infant skin contact is performed in this period, serious events, such as respiratory arrest, occur approximately 1 time in 50,000 live births, and some sort of change in function occurs approximately 1.5 times in 10,000 live births).

3. Irrespective of whether "early mother-infant skin-to-skin contact" is performed, maternity facilities should ensure that at least one staff member trained in neonatal cardiopulmonary resuscitation (NCPR) is always present and be prepared for sudden changes in infants. Also, a "newborn cardiopulmonary resuscitation algorithm" should be posted in the delivery room, and an effort should be made to familiarize the staff with it.

4. At facilities that perform "early mother-infant skin-to-skin contact," "indications," "discontinuation criteria," and "implementation methods" should be prepared according to the circumstances at each facility.

5. During pregnancy (for example, when preparing the birth plan) efforts should be made so that dangerous conditions that may arise during the neonatal period can be understood, a sufficient explanation of "early mother-infant skin-to-skin contact" should be provided to pregnant women, and understanding by the husband and the family as well should be encouraged. When so doing, sufficient explanations in regard to dangers to the infant, not just about benefits and effectiveness, should be provided.

6. After checking once again to see whether the mother wants "early mother-infant skin-to-skin contact," it should be implemented only for those who want it, and a note in that regard should be entered in the chart.

[Commentary]

1) Terminology

The care referred to as “kangaroo care” refers to two different types of early contact: care provided to premature infants in the NICU and care provided to term newborns in the delivery room immediately after birth, the former generally being called “kangaroo care” and the latter “skin-to-skin”.

However, these two terms are often confused, and even in the Western literature the terms “kangaroo care,” “kangaroo mother care,” “skin contact,” “skin to skin contact,” “early skin to skin contact,” “skin-to-skin (kangaroo),” “skin-to-skin contact on preterm infants,” etc., are used for both care in the NICU and for care immediately after birth.

In order to avoid confusion, in this paper we will use the term “early mother-infant skin-to-skin contact” for the early skin-to-skin contact between mother and infant that is implemented in the delivery room immediately after birth, and we would like to propose “early skin-to-skin contact” or “early mother-infant skin-to-skin contact” as the English-language term.

2) Background

Even from the standpoint of an expression of human nature the direct touching between mother and infant and the interaction with each other through their five senses that starts soon after birth can even be described as a natural right of parents and children to nurture each other. Moreover, not only has the effectiveness of early mother-infant skin-to-skin contact been demonstrated scientifically, but if is implemented safely under certain conditions, there is no danger at all.

However, many reports of serious events such as respiratory arrest during early mother-infant skin-to-skin contact and lawsuits related to them have been seen in the news recently. Some of the news reports are conspicuous for the way they present cases as though early mother-infant skin-to-skin contact might have been the cause and early mother-infant skin-to-skin contact itself might be dangerous when the cause was clearly not the early mother-infant skin-to-skin contact. However, emergency situations can arise even when early mother-infant skin-to-skin contact is not performed.

According to Moore ER, et al.,[1] results were seen showing that early mother-infant skin-to-skin contact is effective in increasing the breast-feeding rate from 1-4 months after birth and in prolonging the breast-feeding period. Effectiveness has also been seen in establishing attachment behavior by the mother toward the infant, the relationship between mother and infant, etc. These are not only effects during breast-feeding, such as touching, but are also expressed in the large amount of attachment behavior, such as kissing, after discharge from the hospital. Moreover, in a study of term newborns stabilization of heart rate, respiratory rate, blood glucose level, and body temperature was observed in an early mother-infant skin-to-skin contact group in comparison with a control group.[2] Conversely, early separation of mother and infant after birth intensifies crying by infants, and because crying increases right-to-left shunting through the foramen ovale and decreases pulmonary blood flow, it interferes with arterial blood oxygenation.[3] Consequently, since early mother-infant skin-to-skin contact is effective in shortening infant crying time, it may contribute to arterial blood oxygenation of the infant.

Although the advantages of early mother-infant skin-to-skin contact have been demonstrated as described above, the early postnatal period, which is when early mother-infant skin-to-skin contact is implemented, is also an unstable time when respiratory and circulatory adaptation from fetus to newborn is achieved. Particularly because shunts through the foramen ovale and ductus arteriosus, etc., persist, and right-to-left shunting can be easily induced by cold stimuli, acidosis, hypothermia, etc., dangerous situations in regard to circulatory dynamics may develop at this time.

Consequently, it is necessary to be aware that the early postnatal period is an unstable time irrespective of whether or not early mother-infant skin-to-skin contact is implemented.

3) Reports on the incidence of sudden change cases

A nationwide fact-finding survey of "baby friendly hospitals" in regard to the incidence of sudden change cases during early mother-infant skin-to-skin contact was conducted in 2010. The results showed that replies were received from 42 hospitals (reply rate 87.5%), and at 23 of the hospitals (54.8%) a total of 57 cases of cyanosis of unknown etiology, cardiopulmonary arrest, and infants who seemed about to fall (accidental falls by infants during early mother-infant skin-to-skin contact were also reported)had been encountered in newborns. A study of the 30 of those facilities where the number of deliveries was stated showed that there had been one instance of sudden infant death-apparent life-threatening event (SID-ALTE), and its incidence was 1.1/100,000 live births. There had been five cases in the same facilities before the introduction of early mother-infant skin-to-skin contact immediately after delivery, and the incidence was 5.5/100,000 births. Thus, the incidence of cases of SID-ALTE, etc., that required cardiopulmonary resuscitation did not increase as a result of the introduction of early mother-infant skin-to-skin contact. [4)]

According to the results of a questionnaire survey of pediatricians in Germany in 2009, the onset of SID-ALTE occurred within 24 hours after birth in 17 cases out of 665,126 cases, and the incidence was 2.6/100,000. In 7 of the 17 cases the infant died, and 6 of the 10 survivors had neurological sequelae when they were discharged. In addition, in 12 of the 17 cases there had been a sudden change during early mother-infant skin-to-skin contact (1.8/100,000). Moreover, 9 cases developed during the first 2 hours, but in 7 of them the mother did not notice the sudden change even though she was not sleeping, and it was discovered by a staff member. [5)]

In a surveillance in the United Kingdom in 2012, [6)] among 858,466 term newborns whose gestational age was 37 weeks or more and who had an Apgar score at 5 minutes of 8 or more, 45 required resuscitation by positive-pressure ventilation, or died, or required intensive care because of a sudden change within 12 hours after birth, and 12 of them died (5.2/100,000). Based on their clinical course or pathological examination, airway obstruction during breast-feeding or while in the prone position was diagnosed in 24 of the 45 cases. Congenital diseases were later discovered in 15 other cases, but no underlying disease that might have caused the sudden change was found in the remaining 6 cases. There had been a sudden change during breast-feeding or during early mother-infant skin-to-skin contact in the 24 cases diagnosed with airway obstruction. Almost all of the mothers were primipara, and they had not been carefully watched over by the staff.

In addition, according to a 2012 report that summarized the situations in Germany, France, and the United

Kingdom, the numbers of term newborns in whom no problems were observed at birth but in whom a sudden change occurred within 24 hours after birth and who required resuscitative maneuvers ranged from 2.6 per 100,000 to 5.0 per 100,000 live births. [7)]

4) Results of a nationwide survey in Japan

A nationwide survey of early mother-infant skin-to-skin contact in Japan was conducted in the "Nationwide survey of mother-infant safety in delivery rooms and newborn nurseries" [8)] by the Kodomo Mirai Zaidan (Foundation for Children's Future) in 2010. Replies were received from 585 facilities, which corresponded to approximately a quarter of the maternity facilities in Japan, and they consisted of midwifery homes (144 facilities), hospitals and clinics (308 facilities), and perinatal centers (133 facilities). However, what we refer to here as changes in infants were not defined as life-threatening situations (sudden changes in an infant) as stated above, but were self reports by the facilities, and mild cases were included.

Early mother-infant skin-to-skin contact

- Early mother-infant skin-to-skin contact was implemented in 65.4% of the facilities.
- Implementation standards had been prepared at 30.7% of the facilities.
- Informed consent by pregnant women was obtained before implementation at 48.2% of the facilities.
- Delivery table angle standards had been established at 13.0% of the facilities.
- Withdrawal and discontinuation criteria had been established at 39.9% of the facilities.
- Starting time was immediately after birth at 35.5% of the facilities, 1-5 min at 41.8%, 6-10 min at 7.8%, and 15 min or more at 14.9%, and at approximately 8 out of 10 of the facilities mother-infant skin-to-skin contact was started within 5 min after birth.
- The duration of implementation was no more than 10 min at 28.5% of the facilities, 15-30 min at 27.7%, 40-60 min at 19.7%, and 90 min or more at 19.9%.
- The proportion of the facilities where medical personnel were in continuous attendance was 74.8%, but the proportion where the infants' general condition was recorded was 28.3%.
- The proportion that performed various kinds of monitoring was 49.9%, and a pulse oximeter had been attached at 42.4%.
- The proportion of facilities that had experienced a change in an infant (as stated above, this was not limited to serious conditions) was 4.2%.
- The incidence of change in an infant was 21 cases out of 138,534 (15.2/100,000 live births), and it was confirmed that a change in an infant had occurred in approximately 1.5 infants during 10,000 early mother-infant skin-to-skin contacts.

The results of the above nationwide survey revealed that early mother-infant skin-to-skin contact had already been introduced at approximately 6 in 10 facilities without informed consent or preparation of an implementation method, thereby demonstrating the need for urgent action.

5) Identifying the pathology in sudden change cases

There have been previous instances in which several causative diseases (persistent pulmonary hypertension,

neonatal respiratory disorders, congenital heart disease, etc., and other congenital abnormalities, bacterial infections, metabolic disorders), etc., have been diagnosed as the etiology in emergency situations. In reality, however, in many cases the etiology is unknown, and research related to identification of the pathology would be desirable in the future.

6) Indications for early mother-infant skin-to-skin contact, discontinuation criteria, and implementation methods

There are situations in which partially modifying the basic implementation method recommended here is unavoidable because of the physical or personnel conditions, etc., at the facility. Even in such situations, the effectiveness and safety of early mother-infant skin-to-skin contact should be thoroughly assessed, and the method of implementation that will be of the greatest benefit to the mother and infant should be determined. Alternatives to implementing early mother-infant skin-to-skin contact should also be taken into consideration.

The following are the various criteria for implementing early mother-infant skin-to-skin contact after vaginal deliveries.

<Indications>

Maternal indications

・The mother herself is willing to engage in "early mother-infant skin-to-skin contact."
・Vital signs are stable.
・The mother is not exhausted.
・The physician or midwife does not observe any contraindications.

Infant indications

・Absence of non-reassuring fetal status
・No asphyxia neonatorum (1-min and 5-min Apgar score ≥8)
・Term newborn
・Not a low-birth-weight infant
・The physician, midwife, or nurse does not observe any contraindications.

<Criteria for discontinuation>

Maternal criteria

・Drowsiness
・Physician or midwife judges that it is contraindicated.

Infant criteria

・Presence of a breathing problem (including apnea and gasping respiration)
・SpO_2: <90%
・Limp, little vitality
・Enters a sleeping state
・The physician, midwife, or nurse judges that it is contraindicated.

<Implementation methods>

Early mother-infant skin-to-skin contact has various advantages for mother and infant. Consequently, when no special medical reason to not implement early mother-infant skin-to-skin contact exists, as perinatal care personnel we must consider creating opportunities to implement it. Because early mother-infant skin-to-skin contact is care and not a medical service, smooth communication between the mother and the staff is needed, and consideration so as not to isolate mother and child after delivery is important. When implementing early mother-infant skin-to-skin contact, it is particularly necessary for the staff also to be vigilant in observing the infant and not to just leave the infant's care to the mother alone.

- ◆ Explain "early mother-infant skin-to-skin contact" when drafting the birth plan.
- ◆ Start as soon as possible after birth. It is preferable to continue for 30 min or more or until breast-feeding.
- ◆ Set the upper limit to continue at within 2 hours, and conclude at the point when the infant falls asleep or the mother becomes drowsy.
- ◆ To overcome the disadvantages to the mother and infant when maternity facilities have not implemented early mother-infant skin-to-skin contact, some sort of support needs to be devised for child-rearing during the puerperium and thereafter.

Mother

- ・ Confirm that the mother wants "early mother-infant skin-to-skin contact".
- ・ Elevate the upper body (around 30° is preferable).
- ・ Wipe away sweat on the chest and abdomen.
- ・ Hold the nude baby.
- ・ With the mother and infant chest-to-chest, firmly support the child with both hands.

Infant

- ・Dry the infant off.
- ・Position the infant's head turned to one side so the infant can breathe easily without the nasal cavity becoming obstructed.
- ・Cover the infant with a warmed bath towel.
- ・Attach the probe of a pulse oximeter to a lower limb, or the staff member in charge remains in attendance during implementation and does not leave the mother and child alone
- ・The parameters below are monitored, checked, and recorded.

  Respiratory status: Watch for labored breathing, retractive breathing, tachypnea, groaning, and apnea.

  Feeling cold, cyanosis

  Vital signs (heart rate, respiratory rate, body temperature, etc.)

  Behavior of mother and infant during implementation
- ・At the conclusion record vital signs and the infant's condition.

[References]

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7)Fleming PJ. Unexpected collapse of apparently healthy newborns: the benefits and potential risks of skin-to-skin contact. Arch Dis Child Fetal Neonatal Ed. 2012;97:F2–3.

8) Kubo T. Nationwide survey of mother-infant safety in delivery rooms and newborn nurseries," Kodomo Mirai Zaidan (Foundation for Children's Future). Fiscal 2011 Child-Related Services Survey Study Project Report. March 2012.

9）Horiuchi T. Significance and safety of skin-to-skin contact immediately after birth. The Journal of the Japanese Society for Breastfeeding Research. 2010;4:60-72.

[Reference material]

1) <u>Material for writing a birth plan</u> (example)

A birth plan means that we ask about your wishes in regard to how you imagine your own delivery in advance and then prepare a plan by helping to make it close to your ideal. Please let us know your wishes in regard to the following:

1 Childbirth

Delivery:

□ I want to have a natural delivery.

□ I want to have a planned delivery.

□ I want to have a painless delivery.

Presence of family members, etc.

□ I want to have someone present at the delivery

⇒(husband biological mother other person)

□ I do not want anyone to be present at the delivery.

2 How I want to spend the time in the delivery room and labor room

( )

3 Do you want to have skin-to-skin contact with your baby immediately after birth (early mother-infant skin-to-skin contact)＊

□ I want to have skin-to-skin contact with my baby immediately after birth.

□ I do not want to have skin-to-skin contact with my baby immediately after birth.

4 What are your wishes regarding feeding your baby ( )

5 How do you want to spend time with your baby? ( )

6 Please freely write in any other wishes ( )

……

*****Skin-to-skin contact with your baby immediately after birth(early mother-infant skin-to-skin contact)

Mother and baby spending time together after birth is natural, and it has a positive effect on the relationship between mother and child. Early mother-infant skin-to-skin contact after birth is particularly effective in regard to breast-feeding and the mental and physical stability of the baby and the mother. As a rule, skin-to-skin contact is performed for 30 min or more, but it is implemented according to the baby's condition and the mother's condition after delivery, including how tired the mother is.

Immediately after birth is a time when your baby will be adapting to life outside the womb, and it is an unstable time when changes easily occur. Since it has been reported that a sudden change occurs in about 1 out of 10,000 babies and that about 1 in 50,000 cases is serious, a midwife (or a member of the nursing staff) will be carefully watching over you and your baby during the time that you are in skin-to-skin contact, or will attach a monitor, and will instruct you in how to hold your baby, etc.

If you want to have skin-to-skin contact, please write that you do in the birth plan.

2) Participant observation table for skin contact immediately after delivery (Example)

Time after birth	10 min		30 min		60 min		90 min		120 min
Time	:	:	:	:	:	:	:	:	:
Infant's vital signs	pink	pink	pink	pink	pink	pink	pink	pink	pink
Skin color	flushed	flushed	flushed	flushed	flushed	flushed	flushed	flushed	flushed
	deep purple	deep purple	deep purple	deep purple	deep purple	deep purple	deep purple	deep purple	deep purple
	pale	pale	pale	pale	pale	pale	pale	pale	pale
Cyanosis	lips	lips	lips	lips	lips	lips	lips	lips	lips
	face	face	face	face	face	face	face	face	face
	limbs	limbs	limbs	limbs	limbs	limbs	limbs	limbs	limbs
	whole body	whole body	whole body	whole body	whole body	whole body	whole body	whole body	whole body
Tachypnea (60 breaths or more)	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No
Breathing disorder	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No
SpO_2									
HR									
BT(rectal)									
Wakefulness of the infant									
Asleep									
Sleepy									
Resting awake (on the mother)									
Awake and active									
Crying									
Head position Facing to the side									
Facing front									
Wakefulness of the mother									
Awake									
Drowsy									
Asleep									
Breast-feeding									
None									
Tries to breast-feed the infant									
Intervention (be specific)									
Signature of the staff member in charge									

3) <u>Standards for recording medical care in regard to implementation of early mother-infant skin-to-skin contact</u> (example)

Keep a medical record regarding early mother-infant skin-to-skin contact from the explanation of the birth plan during pregnancy until the conclusion of early mother-infant skin-to-skin contact. The person responsible for implementation is often a midwife, and it is important to record whether there was a sufficient explanation of early mother-infant skin-to-skin contact and the woman wanted it, and observations made before, during, and after its implementation. Also, record any psychological changes that were noted in order to assist with the relationship between the mother and infant following implementation.

If the method of implementing early mother-infant skin-to-skin contact at a facility is different, or if the medical record entry standards, e.g., SOAP (subjective, objective, assessment, and plan) notes, chronological entries, etc., are different, prepare recording standards that conform to the circumstances at the facility.

Content of the records from the time of the explanation of the birth plan to the conclusion of early mother-infant skin-to-skin contact

(1) When the birth plan is explained

[1] Effects: Mother-child relationship, breast-feeding, mental and physical stability of mother and child

[2] Implementation method: If the mother and child are both doing well, the amniotic fluid is wiped off the infant, and skin-to-skin contact is implemented for 30 min or more starting immediately after birth
Implement by placing in skin-to-skin contact while keeping warm with a cover

[3] Precautions: The unstable time accompanying the period of adaptation to extrauterine life Respiratory depression in the infant because of not being accustomed to holding an infant

[4] Implementation system: Instruct the mother in how to hold her infant, and a staff member remains present during implementation or attaches an instrument (pulse oximeter, etc.) and constantly monitors.

[5] A change is possible any time irrespective of whether or not the mother wants early mother-infant skin-to-skin contact

(2) Before implementing early mother-infant skin-to-skin contact

[1] Mother wants early skin-to-skin contact: Mother does not want early skin-to-skin contact (Check and record, regardless of whether the mother's wishes are written in the birth plan)

[2] Mother's condition: Not tired

[3] Infant's condition: 1-min Apgar score 8 or more

[4] Infant drying off: Confirm how to hold Cover with a warmed bath towel

[5] Position: Upper body elevated

[6] Time started

(3) Observation during early mother-infant skin-to-skin contact

[1] Mother and family: How to hold Whether tense or anxious Speaks to the infant Facial expression, etc.

[2] Infant: Skin color Feels cold Respiratory status (respiration, circulatory, and body temperature

measurements when necessary)

Body movements　Nipple adsorption behavior

(4) At the conclusion of early mother-infant skin-to-skin contact

[1] Time concluded

[2] Observation of the mother, child, family, and degree of satisfaction

Early mother-infant skin-to-skin contact templates (examples)

(Use when there is an electronic chart, etc.)

(1) Template name: early mother-infant skin-to-skin contact (birth plan explanation)

□ Effects: Mother-child relationship, breast-feeding, mental and physical stability of mother and infant

□ Implementation method: If the mother and infant are both doing well, wipe the amniotic fluid off the infant, and implement by placing in skin-to-skin contact for 30 min or more starting immediately after birth while keeping warm with a cover

□ Precautions: The unstable time accompanying the period of adaptation to extrauterine life
Possibility of respiratory depression in the infant because of the mother not being accustomed to holding an infant

□ Implementation system: Instruct the mother how to hold her infant, and a staff member will be present during implementation, or will attach an instrument (pulse oximeter) and be constantly monitoring.

□ A change is possible at any time regardless of whether or not the mother wants early mother-infant skin-to-skin contact

(2) Template name: Early mother-infant skin-to-skin contact (before implementation)

□ Wants early mother-infant skin-to-skin contact

□ Does not want early mother-infant skin-to-skin contact

□ Not very tired, and is in condition to be able to perform early mother-infant skin-to-skin contact

□ Very tired, and is not in condition to be able to perform early mother-infant skin-to-skin contact

Infant's 1- min Apgar score ( ) points, 5-min Apgar score ( ) points

□ Infant drying off □ Confirm how to hold □ Keep warm with a bath towel

□ Upper body elevation approximately ( ) degrees

( ) hr ( ) min started

(3) Template name: Early mother-infant skin-to-skin contact (during implementation)

Condition of the mother and family (enter free text)

Condition of the infant: skin color (list of choices no cyanosis, cyanosis present)

Respiratory status (list of choices no abnormal breathing, abnormal breathing present)

(enter free text)

(4) Template name: Early mother-infant skin-to-skin contact (conclusion)

Concluded at ( ) hr ( ) min Implemented for ( ) hr ( ) min

Condition of the mother and family (enter free text)

Degree of satisfaction by the mother and family (enter free text)

Points to Bear in Mind in Regard to the Implementation of

"Early Mother-Infant Skin-to-Skin Contact"

<Preparation>

"Early Mother-Infant Skin-to-Skin Contact" Working Group within the Executive Board of the Japan Society of Perinatal and Neonatal Medicine

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