Placentae Abruptio & Previa, by Infant Outcome, Birth-weight & Gender: Male Excess Abruption?

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Introduction

In a recent report from Indonesian university obstetrics, placental abruption and placenta previa were controlled for maternal age, fetal growth and infant outcome [1], after a previous report had controlled for birth weight & infant sex [2]. Since both pathologies carry very high perinatal death risks (771/1000 & 312/1000 for abruptio & previa, resp.), further analysis is warranted. Also, the observation of more unspecified hemorrhages among males [2] has remained intriguing. In this report the two pathologies are first controlled for birth weight & infant outcome *(Fig. 1)*. Then the *LBW-infants* (low birth weight: <2500 g) are organized into a *6-cell BW/SEX control system* to study the hospital prevalence of various 'hemorrhage fractions' *(Fig. 2)*.

Material and Method

Both remain unchanged [1, 2]. The results are given in fully documented table-charts for reextraction and pointed reasoning. 'Examples of reading' teach access. 'Cell content' is defined for each 3D displayed prevalence plot. Note that in Fig. 2.1 abruptio placentae & unspecified hemorrhages have been pooled (see corresponding 'example of reading'); and that a correction was performed for one birth weight class (1500–1999 g).

Results

The control system in Fig. 1 is a *case-control arrangement* (perinatal death components vs infants alive at discharge) permitting derivation of BW-specific prevalence ratios for specific pathologies. Such indices may be monitored over time in serial cross sectional MCM-rounds to provide a rich source for evaluation of progress.

Abruptio by BW/INFOUT (Fig. 1.1).

Prevalence of abruptio placentae is 0.71%. While a rare event, the 3D display technique in the dual control system visualizes impressive gradients. On the right roof, the PR-chain (1-24.61) suggests a further increase in abruptio prevalence for very severe LBW-infants into the early second and (why not) first trimester. Certain spontaneous abortions may thus be 'early placental abruptions'. Furthermore, while the strong inverse association (abruptio – BW) persists among cases with favorable infant outcome (1-28.13), the 'available prevalence' of abruptio placentae among

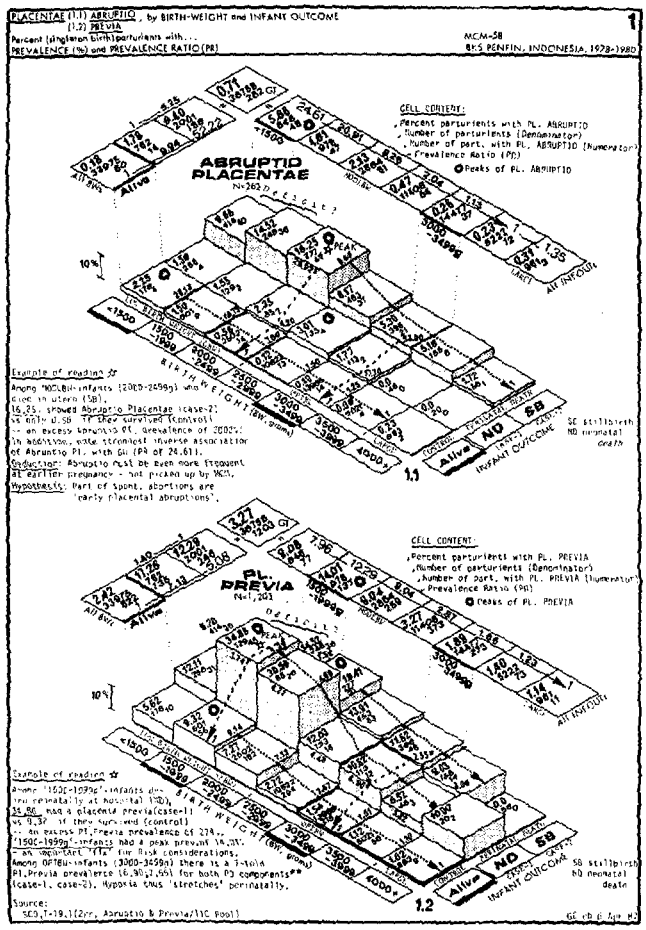


Fig. 1. Placentae abruptio and Placenta previa, by birth weight and infant outcome.

stillbirths shows a deficit at the lower BW extreme. This amounts to an empirical hypothesis: the deficit 'occurred' earlier as spontaneous abortion – not available to the MCM-questionnaire applied around birth. The two hypotheses are thus complementary. Finally, at BW 3000-3499 g, the case-control prevalence ratios (PR) are 17.70 (ND) and 53.00 (SB). Their reduction depends mainly on timely referral and appropriate obstetrical intervention.

Previa by BW/INFOUT (Fig. 1.2).

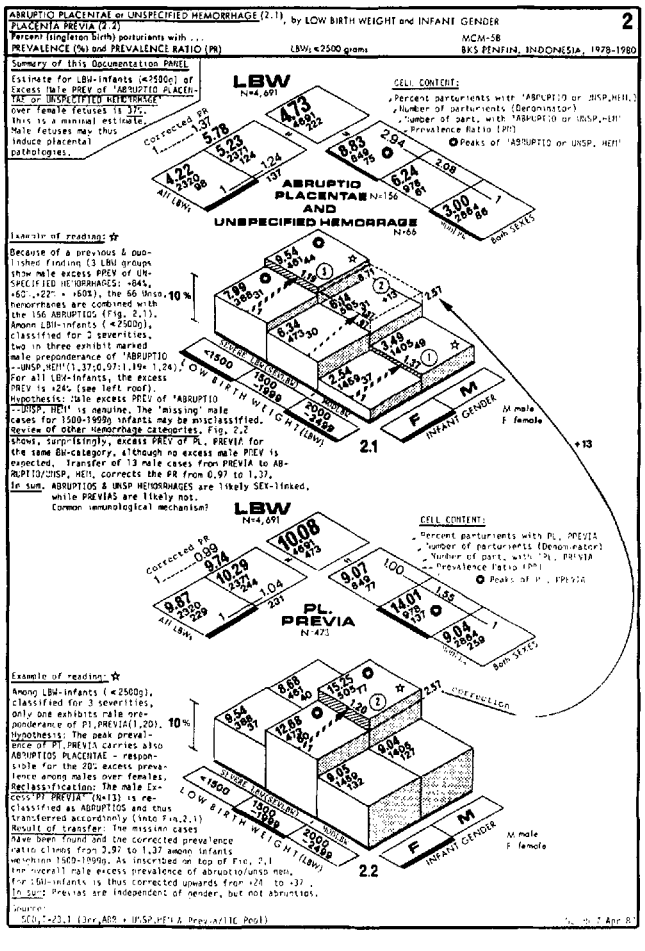
Prevalence of placenta previa is 3.27%, a clinical concentration. Peak prevalence occurs at 1500–1999 g (14.01%) – much higher than at lowest birth weight (9.08%). Likely, the 'deficit theory' is not applicable to placenta previa to the extent it is to placental abrup-

tion. Striking is the *'previa crest'* at lower birth weights among neonatal deaths (ND). For BWs 1500–2499 g, ⅓ of all NDs relate to diagnosed placenta previa. At BW 3000–3499 g, the case-control prevalence ratios (PR) are 6.90 (ND) and 7.55 (SB). Their reduction depends on timely (referral) and appropriate intervention (type of delivery, transfusion, etc).

Abruptio, Previa & Unspecified Hemorrhage by LBW/ GENDER (Fig. 2).

A fortuitous observation *(2, Fig. 19.3)* has shown an excess prevalence of unspecified hemorrhage for male LBW infants over female LBW infants in 3 in 3 subgroups, generating an aggregate *LBW Male excess Unspecified Hemorrhage prevalence* of +60.4% (1.729/ 1.078=1.604). One may hypothesize that at LBW, unspecified hemorrhage is mainly linked with 'unsuccessful abruption', justifying statistical pooling. Such pooling leads to Fig. 2.1. Study 'example of reading'. The salient observation is a missing excess-[abruptio + unspec. hemorrhage] prevalence for male infants weighing 1500–1999 g, which, however, is 'recuperated' from placentae previae *(Fig. 2.2)*. Obviously, low implantation does not preclude either abruption or unspecified hemorrhage. A correction is thus warranted by reclassifying 13 cases. The corrected excess male prevalence of [abruptio + unspecified hemorrhage] reaches thus +37% (5.78/4.22=1.37) among LBW infants – still a minimal estimate.

Fig. 2. Antepartum Hemorrhages among LBW-infants, by low birth weight [3 groups] and infant gender.



Discussion

This developing country data set of 36,802 deliveries is a *superconcentrate of antepartum hemorrhage.* Its epidemiological analysis generates two hypotheses: [1] common mechanism of action operating one category of spontaneous abortions and later unspecified hemorrhage and placental abruption, and [2] exhibiting male-linkage, implying an immunological mechanism.

Summary and Outlook

Antepartum hemorrhage was subdivided into three categories and their prevalences controlled among LBH-infants for infant outcome and gender. Unspecified hemorrhage and abruptio placentae share sex-linkage, while placenta previa does not. Misclassification and non-availability of large data sets may have contributed to a contradictory 25-year literature on sex-dependence [3].

Zusammenfassung und Ausblick

Vorzeitige Plazentalösung & Placenta praevia, nach Überleben des Kindes, Geburtsgewicht & Geschlecht: Geschlechtsgebundene Abruptio placentae?

Die systematische Überwachung der Geburten in den Indonesischen Universitätsfrauenliniken ermöglichte eine differenzierte Analyse der Blutungen im letzten Drittel der Schwangerschaft für 36802 Entbindungen. Folgendes Profil wurde eruiert: [1] Für Geburtsgewichte unter 2500 g haben Knaben grössere Raten von vorzeitiger Plazentalösung und ungeklärten Blutungen als Mädchen; [2] der Mechanismus der zur Abruptio placentae führt könnte auch für gewisse Spontanaborte verantwortlich sein; [3] Placenta praevia scheint nicht geschlechtsgebunden zu sein; [4] die Geschlechtsgebundenheit von zwei Blutungsgruppen und gewissen Aborten könnte möglicherweise auf einem Mechanismus der Autoimmunisation beruhen.

Résumé et Perspectives

Hémorragie rétroplacentaire et Placenta praevia selon la survie, le poids de naissance et le sexe: prédominance mâle de l'hémorragie rétroplacentaire?

Le Système de Surveillance de Soins de Maternité (SSM) déployé en Indonésie de 1978–1980 permet une analyse détaillée des pathologies. L'analyse des cas d'hémorragie du troisième trimestre enregistrés dans un collectif de 36802 grossesses suivies en milieu universitaire permet de tirer les conclusions suivantes: [1] les hémorragies rétroplacentaires ainsi que les hémorragies de cause indéterminée sont plus fréquentes chez les parturientes porteuses d'un garçon de faible poids de naissance que d'une fille de faible poids de naissance; [2] le mécanisme menant à l'hémorragie rétroplacentaire pourrait être également responsable de certains avortements spontanés; [3] le placenta praevia ne paraît pas lié au sexe de l'enfant; [4] l'association avec le sexe mâle de deux catégories d'hémorragies du 3e trimestre et de certains avortements pourrait reposer sur un mécanisme immunologique.

References

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