New Classification System Categorizes Causes of Abnormal Uterine Bleeding

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June 7, 2011 — The International Federation of Gynecology and Obstetrics (FIGO) has approved a new classification system (PALM-COEIN) for causes of abnormal uterine bleeding (AUB) in no gravid women of reproductive age. The new system, which is published in the June issue of the International Journal of Gynecology & Obstetrics, should facilitate basic science and clinical research, as well as the practical, rational, and consistent application of medical and surgical treatments.

Of the 9 categories in the new FIGO classification system (PALM-COEIN), the first 4 are defined as visually objective structural criteria (PALM: polyp, adenomyosis, leiomyoma, and malignancy and hyperplasia). The second 4 are unrelated to structural abnormalities (COEI: coagulopathy, ovulatory dysfunction, endometrial, and iatrogenic), and the final category is for entities that are not yet classified (N).

"There has been general inconsistency in the nomenclature used to describe ...AUB in reproductive aged women, and there is a plethora of potential causes—several of which may coexist in a given individual," said lead author Malcolm G. Munro, MD, FRCS(c), FACOG, professor of obstetrics and gynecology at the David Geffen School of Medicine, UCLA, and director of gynecologic services, Kaiser Permanente, Los Angeles Medical Center in California, in a news release.

"It seems clear that the development of consistent and universally accepted nomenclature is a step toward rectifying this unsatisfactory circumstance. Another requirement is the development of a classification system for the causes of AUB, which can be used by clinicians, investigators, and even patients themselves to facilitate communication, clinical care, and research."

After a thorough 5-year review process beginning with workshops in 2005, a group of clinician-investigators from 17 countries on 6 continents who had substantial experience in AUB research developed and revised a draft system that was distributed for comments. The PALM-COEIN classification system was then discussed at a meeting held in association with the 2009 FIGO World Congress in Cape Town, South Africa, and subsequently approved by the FIGO Executive Board as a FIGO classification system.

The PALM Categories

The PALM categories (polyp, adenomyosis, leiomyoma, and malignancy and hyperplasia) refer to discrete (structural) entities that can be measured visually with imaging techniques, such as sonography and/or histopathology testing. The "polyp" category lends itself to the development of a subclassification for clinical or investigative use based on a combination of variables, including polyp dimension, location, number, and morphologic and histologic features. The "leiomyoma" category is subdivided into patients with at least 1 submucosal myoma and those with myomas that do not affect the endometrial cavity.

Within the "malignancy and hyperplasia" group, it was proposed that malignant or premalignant lesions, such as atypical endometrial hyperplasia, endometrial carcinoma, and leiomyosarcoma,
be categorized as such within the major category, but further described with use of existing World Health Organization and FIGO classification and staging systems.

In contrast to the PALM group, the COEIN group (coagulopathy, ovulatory dysfunction, endometrial, iatrogenic, and not yet classified) includes nonstructural entities that are not defined on imaging or histopathology testing. The "iatrogenic" category refers to AUB associated with the use of exogenous gonadal steroids, intrauterine systems or devices, or other systemic or local agents.

**Practical, Feasible System**

"There is no existing classification of the causes of these common gynecologic symptoms that allows good communication between practicing clinicians and researchers, and which encourages focus on the optimal approaches to modern management," said FIGO chief executive Hamid Rushwan. "Therefore, FIGO is pleased to have a role in facilitating the use of this ground-breaking new classification worldwide."

The diagnosis of chronic AUB requires unpredictability, excessive duration, abnormal volume, and/or abnormal frequency of menses for at least the previous 3 months. Structured history should determine ovulatory function, potential related medical disorders, medications, and lifestyle factors that might contribute to AUB.

Subsequent appropriate investigation may be based in part on the future fertility desires of the patient. Ancillary testing should include hemoglobin and/or hematocrit, testing for conditions that could contribute to an ovulatory disorder (thyroid function, prolactin levels, and serum androgen levels), and either referral to a hematologist or appropriate tests for von Willebrand's disease if a structured history suggests coagulopathy.

The developers of the new system intended it for practical and feasible use by clinicians in most countries worldwide to readily and consistently classify patients with AUB. Because of a lack of availability in many countries, the use of magnetic resonance imaging (MRI) for characterization of structural lesions of the uterus was not feasible; therefore, use of MRI was not included as a mandatory tool to classify patients with chronic AUB.

However, clinicians should continue to use MRI if it is considered to be necessary and is available, and they should use the results of MRI scans to determine the presence or absence of adenomyosis when classifying a patient according to the present PALM-COEIN system.

**Regular Modifications Needed**

"It is recognized that the system will require periodic modification and occasional substantial revision depending on advances in knowledge and technology, and increasing availability of investigative options across geographic regions," the study authors write. "Consequently, we recommend a scheduled systematic review of the system on a regular basis by a permanent committee of an international organization such as FIGO, which has already endorsed the establishment of a suitable ongoing Working Group on Menstrual Disorders."

In an accompanying special editorial, by Drs. Munro, Hilary O. D. Critchley, and Ian S. Fraser, they further reemphasize that "the FIGO classification is regarded as a flexible 'living' document that should undergo review and consideration for modification at regular intervals. It is suggested
that discussion of the practical use and clarity of the classification should initially occur at 3-
yearly intervals—in line with each FIGO World Congress."

Some of the study authors have acted as consultants for, given lectures for, and received
honoraria from Bayer Schering Pharma, which partly funded this initiative. Many other
organizations and companies contributed in direct or indirect ways to the development of this
process.


**Clinical Context**

The terminology and definitions for AUB in nongravid women of reproductive age have been
inconsistent, as reported by Woolcock and colleagues in the December 2008 issue of *Fertility
and Sterility*. FIGO developed a system to classify AUB through a modified RAND/UCLA
Delphi process.

This FIGO report describes the recommended classification system and terminology for causes
of AUB in nongravid women of reproductive age.

**Study Highlights**

- AUB includes menstrual bleeding that is abnormally heavy or abnormal in timing.
- The classification system does not include abnormal bleeding related to pathologic
  conditions of the lower reproductive tract.
- The term *dysfunctional uterine bleeding* should be replaced by *coagulopathy*,
  *endometrial dysfunction*, and *ovulatory disorders*.
- *Heavy menstrual bleeding* should replace *menorrhagia* to describe excess menstrual
  bleeding.
- Intermenstrual bleeding that occurs between clearly defined cyclic and predictable
  menses should replace the term *metrorrhagia*.
- Chronic AUB is defined as bleeding from the uterine corpus that is abnormal in volume,
  regularity, or timing; is present for most of the prior 6 months; and requires immediate
  intervention.
- Acute AUB is defined as an episode of heavy bleeding requiring immediate intervention.
- The acronym for the 9 categories of the classification system is PALM-COEIN: polyp,
  adenomyosis, leiomyoma, malignancy and hyperplasia, coagulopathy, ovulatory
dysfunction, endometrial, iatrogenic, and not yet classified.
- PALM components can be assessed visually by imaging techniques or histopathology
  testing.
- COEIN components are not structural.
- Polyps (endometrial and endocervical) are categorized as absent or present, as defined by
  one or a combination of ultrasound and hysteroscopic imaging with or without
  histopathology testing.
- Adenomyosis minimal criterion is identification on ultrasound testing.
- Leiomyoma, or benign fibromuscular tumors of the myometrium, is the preferred term
  instead of *myoma* or *fibroid*. 
Leiomyoma minimal criterion is identification on ultrasound testing.
The leiomyoma secondary classification system categorizes lesions as "submucosal" vs "others":
- Submucosal types are 0 (pedunculated intracavitary), 1 (< 50% intramural), and 2 (≥ 50% intramural).
- Other types are 3 (contacts endometrium, 100% intramural), 4 (intramural), 5 (subserosal ≥ 50% intramural), 6 (subserosal < 50% intramural), 7 (subserosal pedunculated), and 8 (includes cervical or parasitic and other lesions not related to the myometrium).
The leiomyoma tertiary classification system for hybrid lesions describes the endometrial relationship first and serosal relationship second, separated by a hyphen.
The leiomyoma classification does not yet include the size of the uterus, single longest measurement, location, and number of lesions.
Malignancy and hyperplasia would be referred to as AUB-M, with subclassification according to the World Health Organization or FIGO system.
Coagulopathy occurs in approximately 13% of women with heavy menstrual bleeding.
Ovulatory dysfunction can lead to amenorrhea or heavy menstrual bleeding.
Ovulatory disorders can occur because of endocrinopathies, iatrogenic causes, or at adolescence or transition to menopause.
Endometrial disorders are likely to occur when other abnormalities are excluded in the presence of normal ovulatory function.
Iatrogenic causes include "breakthrough bleeding" during use of single or combined gonadal steroid therapy, intrauterine systems or devices, systemic agents that interfere with dopamine metabolism, or anticoagulant drugs.
Not yet classified causes include rare or ill-defined conditions: chronic endometritis, arteriovenous malformations, and myometrial hypertrophy.
The full notation of classification would include the entire acronym AUB PALM-COEIN with the abnormalities noted, whereas the abbreviated notation would include only the abnormalities.
AUB can be assessed by a β-subunit of human chorionic gonadotropin, duration and timing of flow, hemoglobin or hematocrit, serum progesterone levels, evaluation of the uterus on ultrasound testing, screening transvaginal ultrasound test of the endometrial cavity, and evaluation for coagulopathies with use of structured history as screening.

**Clinical Implications**

- The FIGO classification system for causes of AUB in nongravid women of reproductive age is PALM-COEIN (polyp, adenomyosis, leiomyoma, malignancy and hyperplasia, coagulopathy, ovulatory dysfunction, endometrial, iatrogenic, and not yet classified).
- The FIGO leiomyoma subclassification system describes lesions that are submucosal, other (intramural, subserosal, cervical, or parasitic), and hybrid (relate to both the endometrium and serosa).