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## Hypertensive Disorders in Pregnancy: A Review

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**Abstract** Hypertension disorders are the most commonly diagnosed pregnancy complications and involve 5 to 10% of all pregnancies (1). These disorders account for, roughly, 16% of maternal mortality in developed countries. Hypertension disorders are categorized as chronic hypertension and a group of pregnancy-specific hypertension, including pregnancy and preeclampsia. Searches were conducted by two independent researchers in international (PubMed, Web of science, Scopus and Google scholar) and national (SID, Magiran) databases for related studies from the inception of the databases to September 2017 (without time limitation) in English and Persian languages. To ensure literature saturation, the reference lists of included studies or relevant reviews identified through the search were scanned. The Hypertension Classification System was first introduced by the Terminology Committee of the American College of Obstetricians and Gynecologists. In this system, four main categories are considered for pregnancy hypertension, including pregnancy hypertension, preeclampsia or eclampsia, chronic hypertension, and preeclampsia in line with chronic hypertension.

**Keywords** Hypertensive, pregnancy

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### Introduction

Hypertension disorders are the most commonly diagnosed pregnancy complications and involve 5 to 10% of all pregnancies [1]. These disorders account for, roughly, 16% of maternal mortality in developed countries. Hypertension disorders are categorized as chronic hypertension and a group of pregnancy-specific hypertension, including pregnancy and preeclampsia [2]. Approximately 30% of hypertension disorders in pregnancy are due to chronic hypertension and 70% are affected by pregnancy hypertension [3]. The spectrum of these diseases varies from mild hypertension that is clinically insignificant to severe hypertension and dysfunction of several organs. The incidence of this disease depends on a large number of demographic variables, including the age and sex of the mother and the underlying medical problems associated with it [4]. Understanding the process of the disease and the impact of hypertension on pregnancy is very important, as these disorders are still one of the leading causes of maternal and perinatal deaths and complications all over the world [5].

### Methods

#### Search strategy

Searches were conducted by two independent researchers in international (PubMed, Web of science, Scopus and Google scholar) and national (SID, Magiran) databases for related studies from the inception of the databases to September 2017 (without time limitation) in English and Persian languages. To ensure literature saturation, the reference lists of included studies or relevant reviews identified through the search were scanned. The specific



search strategies were created by a Health Sciences Librarian with expertise in systematic review search using the MESH terms and free terms according to the PRESS standard. After the MEDLINE strategy was finalized, it was adapted to search in other databases. Accordingly, PROSPERO was searched for ongoing or recently related completed systematic reviews. The key words used in the search strategy were “Hypertension, pregnancy” and Iran which were combined with Boolean operators including AND, OR, and NOT.

### Study Selection

Results of the Literature review were exported to Endnote. Prior to the formal screening process, a calibration exercise was undertaken to pilot and refine the screening. Formal screening process of titles and abstracts were conducted by two researchers according to the eligibility criteria, and consensus method was used for solving controversies among the two researchers. The full text was obtained for all titles that met the inclusion criteria. Additional information was retrieved from the study authors in order to resolve queries regarding the eligibility criteria. The reasons for the exclusion criteria were recorded. Neither of the review authors was blinded to the journal titles, the study authors or institutions.

### Definitions and Classification of Hypertension Disorders in Pregnancy

Hypertension (hypertension) is defined as a systolic blood pressure equal to or greater than 180 mmHg or diastolic blood pressure equal to or greater than 90 mmHg (6). Abnormal proteinuria in pregnancy is defined as the excretion of 300 mg of protein or more in 24 hours [7]. The most accurate method for measuring proteinuria is to collect a 24-hour urine sample [8]. However, in some circumstances, sample collecting methods using paper tape may be the only tool available to measure protein in the urine [9]. The result of 1+ or more in these methods is equivalent to 30 mg / dL of protein in the urine. Definition of proteinuria by strip method is a result of 1+ or more in at least twice a test at a distance of at least 6 hours and a maximum of one week [10]. The precision of the semi-quantitative measurement of the band method in isolated urine specimens is very variable compared with the results of 24-hour urine collection [11]. Therefore, if there is no time limit, 24-hour urine collection should be performed as part of the diagnostic criteria needed to identify proteinuria [12]. The Hypertension Classification System was first introduced by the Terminology Committee of the American College of Obstetricians and Gynecologists [13]. In this system, four main categories are considered for pregnancy hypertension, including pregnancy hypertension, preeclampsia or eclampsia, chronic hypertension, and preeclampsia in line with chronic hypertension.

Table 1 presents a list of these classes, along with the characteristics of each of them [14].

**Table 1:** Classification and definition of hypertension in pregnancy

Disorder	Definition
pregnancy hypertension	Hypertension occurs after the 20 <sup>th</sup> week of gestation or during the first 24 hours after delivery, without proteinuria or other symptoms of preeclampsia.
Temporary hypertension	Hypertension recovered in 12 weeks after delivery
Chronic hypertension	Hypertension over-lasting 12 weeks after delivery
preeclampsia or eclampsia	Hypertension typically occurs after 20 weeks of gestation with proteinuria; eclampsia is the occurrence of active seizures without other recognizable causes.
Chronic hypertension	Hypertension is diagnosed before pregnancy before the 20th week of gestation, or after 12 weeks after delivery.
preeclampsia in line with chronic hypertension	The incidence of preeclampsia or eclampsia in a woman who has already had previous or chronic hypertension.

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