Reproductive Function of Central Precocious Puberty in Girls A Systematic Review



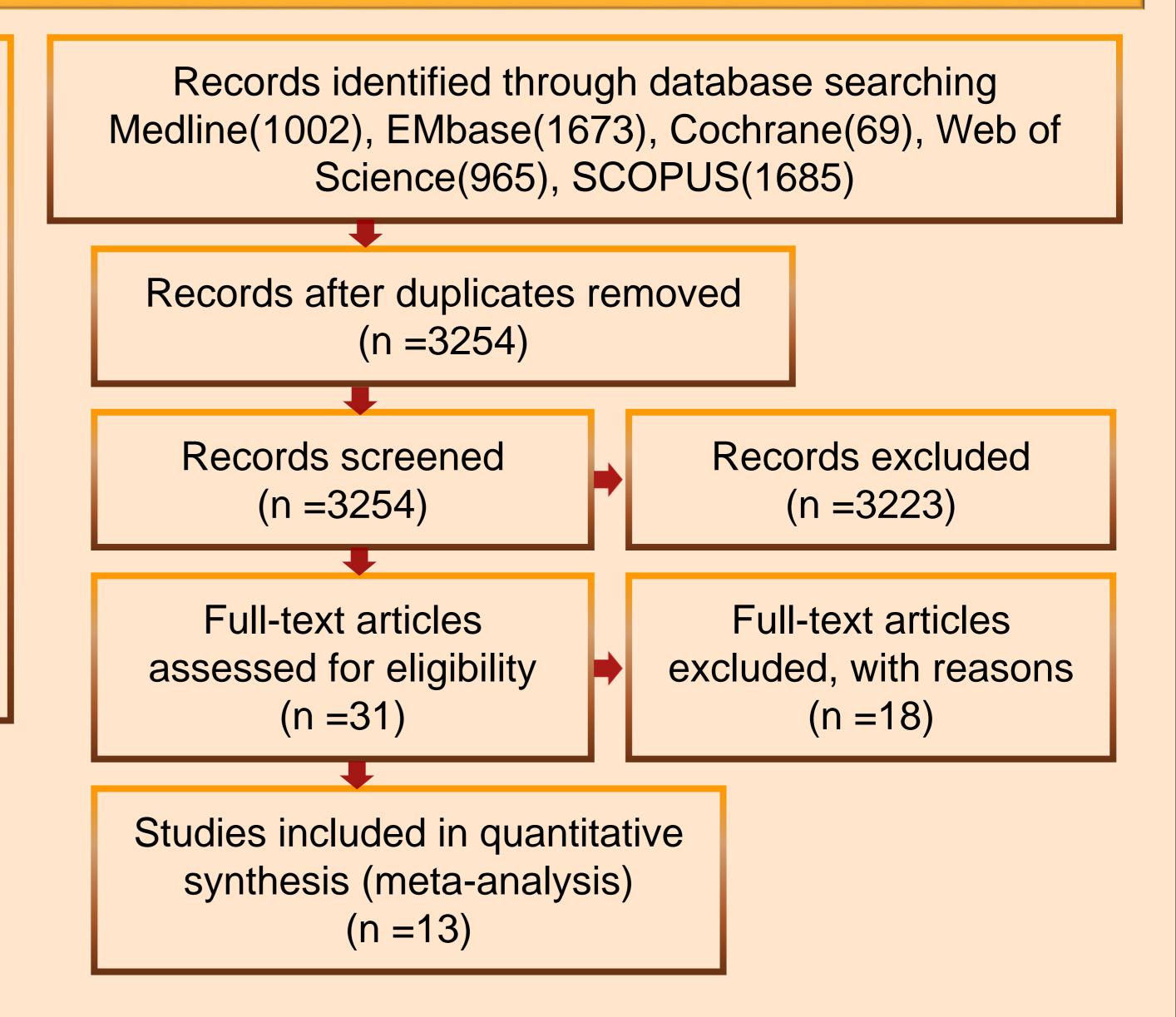
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INTRODUCTION

GnRH analogues are the treatment of choice for central precocious puberty. It has been proven beneficial effects on final adult height, but the reproductive function has many debate especially about PCOS. The criteria used for the diagnosis of PCOS can be more difficult to judge because it is not uniform between the studies. Usually Rotterdam criteria is used for diagnosis of PCOS. According to criteria, PCOS could be diagnosed, by two of the following three features: 1) oligo- or anovulation, 2) clinical and/or biochemical signs of hyper-androgenism, or 3) polycystic ovaries.

OBSECTIVES & METHODS

Medline, Cochrane, EMBASE, Web of Science, SCOPUS data bases were studies searched for published up to January 22, 2016 using key phrases "precocious puberty/early "GnRH puberty," and analogue." We were unified in 2003 Rotterdam criteria to the diagnostic criteria for PCOS.



RESULTS

The initial literature search yielded 3254 articles after the removal of duplicates.

Of these, 3223 were excluded as not meeting inclusion criteria or non-relevant, leaving 31 reports for full-text review to assess eligibility.

Polycystic Ovary Morphology

| Study or Subgroup | | treated Totals | | not treated Totals | Weight | Risk Ratio M-H, Random, 95% CI | Risk Ratio M-H, Random, 95% CI | Oligomenorrhea | | | | | | | | | | |
|--|-----------|----------------|---------------------|---|--------|-----------------------------------|-----------------------------------|--|----------|-----------|----------------------|-------------|--------|---------------------|-------|------------|----------|----------------|
| CPP GnRHa treated vs not treated | ed | | | | | | | | O::DU | - 44 | O: DU | | | Diele Detie | | Diele D | -4!- | |
| Alessandra Cassio 2006 | 1 | 17 | 1 | 14 | 23.5% | 0.82 [0.06, 12.01] | - | 04 | | a treated | | not treated | | Risk Ratio | | Risk R | | -0/ C I |
| Maria Alexandra Magiakou 2010 | 2 | 26 | 7 | 13 | 36.0% | 0.14 [0.03, 0.59] | | Study or Subgroup | | Totals | Events | Totals | Weight | M-H, Random, 95% CI | IV | /I-H, Rand | 30m, 95 | % CI |
| Valentina Chiavaroli 2010 | 6 | 25 | 7 | 55 | 40.4% | 1.89 [0.71, 5.04] | | CPP GnRHa treated vs not treate | ed | 00 | 4 | 40 | 7.70/ | 0.00 [0.05, 40.40] | | | | |
| Subtotal (95% CI) | | 68 | | 82 | 100.0% | 0.61 [0.09, 5.04] | | Alessandra Cassio 2006 | 1 | 22 | 1 | 18 | 7.7% | 0.82 [0.05, 12.19] | | | | |
| Total events | 9 | | 15 | | | | | Valentina Chiavaroli 2010 | 8 | 25 | 11 | 55 | 92.3% | 1.60 [0.73, 3.48] | | | | |
| Heterogeneity: Tau ² =2.01; Chi ² =8 | 3.69, df= | 2(P=0.01); | l ² =77% | | | | | Subtotal (95% CI) | _ | 47 | | 73 | 100.0% | 1.52 [0.72, 3.21] | | | | |
| Test for overall effect: Z=0.51 (P= | =0.61) | | | | | | | Total events | 9 | | 12 | | | | | | | |
| CPP GnRHa treated vs control | | | | Heterogeneity: Tau ² =0.00; Chi ² =0.22, df=1(P=0.64); I ² =0% | | | | | | | | | | | | | | |
| Alessandra Cassio 2006 | 1 | 17 | 2 | 16 | 23.6% | 0.47 [0.05, 4.70] | <u> </u> | Test for overall effect: Z=1.10 (P= | =0.27) | | | | | | | | | |
| P.P.Feulilla 2001 | 4 | 16 | 3 | 14 | 75.4% | 0.17 [0.31, 4.34] | | | | | | | | | 0.001 | 0.1 | 1 10 | 0 100 |
| Subtotal (95% CI) | | 33 | | 30 | 100.0% | 0.93 [0.30, 2.92] | | | | | | | | | | | | |
| Total events | 5 | | 5 | | | | | | | | | | | | | | | |
| Heterogeneity: Tau ² =0.00; Chi ² =0 | 0.46, df= | 1(P=0.50);l | l ² =0% | | | | | Hyperandrogenism | | | | | | | | | | |
| Test for overall effect: Z=0.12 (P= | =0.91) | | | | | | | | | | | | | | | | | |
| | | | | | | | 0.01 0.1 1 10 10 | 00 | GnRHa | a treated | GnRHa | not treated | | Risk Ratio | | Risk R | atio | |
| Polycystic Ovary S | yndr | ome | | | | | | Study or Subgroup | Events | Totals | Events | Totals | Weight | M-H, Random, 95% CI | N | I-H, Rand | lom, 95% | % CI |
| | | | | | | | | CPP GnRHa treated vs not treate | ed | | | | | | | | | |
| | GnRH | treated | GnRHa | not treated | | Risk Ratio | Risk Ratio | Maria Alexandra Magiakou 2010 | 10 | 30 | 4 | 13 | 37.9% | 1.08 [0.41, 2.83] | | | • | |
| Study or Subgroup | Events | Totals | Events | Totals | Weight | M-H, Random, 95% CI | M-H, Random, 95% CI | Valentina Chiavaroli 2010 | 14 | 25 | 13 | 55 | 62.1% | 2.37 [1.32, 4.27] | | | | |
| CPP GnRHa treated vs not treated | ed | | | | | | | Subtotal (95% CI) | | 55 | | 68 | 100.0% | 1.76 [0.83, 3.72] | | | | |
| Alessandra Cassio 2006 | 2 | 22 | 1 | 18 | 15.9% | 1.64 [0.16, 16.62] | - | Total events | 24 | | 17 | | | | | | | |
| Maria Alexandra Magiakou 2010 | 5 | 29 | 4 | 13 | 36.6% | 0.58 [0.18, 1.75] | | Heterogeneity: Tau ² =0.14; Chi ² =1 | .88, df= | 1(P=0.17) | ;l ² =47% | | | | | | | |
| Valentina Chiavaroli 2010 | 10 | 25 | 9 | 55 | 47.5% | 2.44 [1.14, 5.26] | | Test for overall effect: Z=1.48 (P= | | , | | | | | | | | |
| Subtotal (95% CI) | | 76 | | 86 | 100.0% | 1.34 [0.46, 3.89] | | · · | • | | | | | | 0.02 | 0.5 1 | 2 | 5 |
| Total events | 17 | | 14 | | | | | | | | | | | | 0.02 | 0.0 | 2 | 3 |
| Heterogeneity: Tau ² =0.47; Chi ² =4 | 4.42, df= | 2(P=0.11);I | ² =55% | | | | | | | | | | | | | | | |
| Test for overall effect: Z=0.53 (P= | =0.59) | | | | | | | | | | | | | | | | | |
| | | | | | | 0 | 001 0.1 1 10 10 | 000 | | | | | | | | | | |

CONCLUSIONS

Based on the studied literature, CPP patients with GnRH analogue treatment has a regular menstrual cycle at 80.5%. The available evidence supports little confidence regarding the impact of CPP with or without GnRH analogues on the develop of PCOS but suggests that early puberty in girls may increase the risk of PCOS. In order to increase the strength of the results, well-designed cohort studies with large sample size should be performed in future.

Disclosure Information

Ji Hyun, Kim. M.D.

I have no financial relationships to disclose



